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Vessel Safety Guide

Guidance for Offshore Renewable Energy Developers

2015

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Disclaimer

The contents of this guide are intended for information and general guidance only, do not constitute advice, are not exhaustive and do not indicate any specific course of action. Detailed professional advice should be obtained before taking or refraining from action in relation to any of the contents of this guide or the relevance or applicability of the information herein.

Contents

Foreword

In 2012 RenewableUK (in partnership with the Crown Estate) published the first version of this Vessel Safety Guide. Its aim was to facilitate the sharing of lessons and the development of good practice in the offshore renewable industry to ensure the safe and successful delivery of renewable energy projects for the UK. This updated guide is intended to support other recently published health & safety guidelines and reference sources developed for the offshore renewable industry by RenewableUK and stakeholder partners working in wind sector.

The guide gives information and insight on health and safety aspects related to the selection of vessels. This will assist duty holders in the selection of vessels and equipment for operations in the UK REZ including transit to and from the zone, that are both safe and Fit for Purpose.

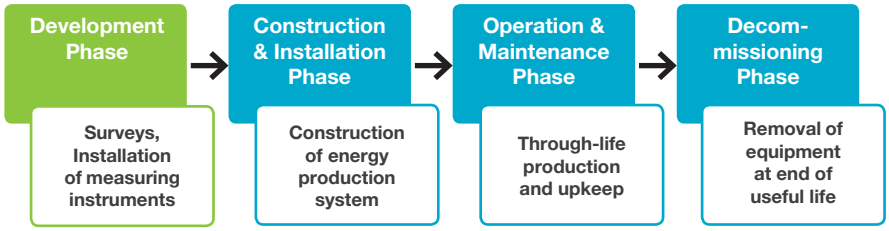
These guidelines, while informed by current knowledge and accepted industry practices, cannot be assumed to be definitive or exhaustive. Alternative approaches and standards may still be acceptable where this can be supported by evidence that regulatory requirements have been met and that risks have been effectively managed to acceptable levels.

Fit for purpose in the context of this guide means:

"A vessel with the appropriate capability, equipment and crewing levels to carry out planned activities at a specific site for a defined duration, taking due consideration of the activity, site location, conditions and any changes to plans or incidents which may reasonably be foreseen."

The main emphasis of this guide is on the selection of a vessel that is safe and Fit for Purpose. The innovation we have seen both with new vessel designs and performance characteristics as well as new access/transfer systems is such that what is regarded as accepted safe and good practice can change quickly. It is therefore important to regularly review the continued suitability of vessels that may been deemed fit for purpose on previous projects – especially where operational requirements/demands have changed and/or where new or modified equipment have been installed on the vessel.

Figure 1: Lifecycle Stages of an Offshore Energy Project
(areas covered by this issue of the guide are highlighted in green)



It should be noted that the Health & Safety at Work etc. Act 1974 (Application outside Great Britain) Order 2013) extend the prescribed provisions of the HSW Act to work activities beyond the territorial sea and to other specified areas designated by order under section 1(7) of the Continental Shelf Act 1964. It extends the HSW Act to work activities such as the construction, repair and operation of energy structures and related structures within a renewable energy zone (REZ).

Purpose of the guidance

Offshore wind, wave and tidal projects are introducing new and particular risks by moving further offshore into deeper waters and more hostile environments. The selection and management of appropriate vessels is critical to ensure the safe and successful execution of projects. RenewableUK and stakeholders partners continue work together to review the scope and suitability of industry guidance and standards that address the significant health and safety aspects of marine operations during the lifecycle of offshore projects which comprises the broad stages shown in Figure 1. Whilst each area will have differing marine characteristics and a wide range of vessels will be utilised in the various operations, this document is intended to provide guidance in the process of selection and management of vessels and interface of equipment to ensure all are Fit for Purpose and operated within a robust Health & Safety management system.

Guide Target Audience & Applicability

The guide is aimed at developers and those new to the offshore renewable sector that may not be familiar with the operation of vessels or are considering using vessels in deeper water or further from shore.

The guide covers most vessel types commonly used. The principle of ensuring vessels are Fit for Purpose also applies where innovative solutions or alternative vessel types are used.

The guide assumes that a tender assessment which considered due diligence (defined as a competent and reasonable effort to ensure the supplier can meet their obligations in a safe manner) has been carried out to determine the competence of the vessel supplier/owner.

It should be noted that the guide takes account of applicable regulations, guidance and good practice as currently seen to apply to vessel safety for the development phase of offshore renewable energy projects. It is expected that as regulations, standards and industry good practice develop further revisions will be made to the guidance.

Development (and Consenting) Phase

The development phase for the purposes of this guide is taken to mean the period of activity leading up to the point where construction is ready to commence following the award of consent and includes but is not limited to:

- Bird, fish & mammal surveys;
- Vessel traffic surveys;
- Geotechnical & Geophysical surveys;
- Installation of meteorological equipment (e.g. Masts/ Buoys);
- Crew transfer and service vessel use (to maintain meteorological equipment).

Construction and Installation Phase

The phase during which construction of the energy development is undertaken with the installation of foundations, erection of the support structures and installation of the turbines, cables or other equipment as appropriate to the type of energy production system.

Operations and Maintenance Phase

On completion of construction, the day to day operation and production of power for delivery to the grid and the on-going maintenance of the structures, balance of plant and infrastructure.

Decommissioning Phase

Removal of equipment at the end of the items useful life in accordance with extant environmental and regulatory requirements at the time of removal. Phase could include repowering which would involve activities set out in the phases outlined in Figure 1.

Guide Layout

This guide gives an overview of vessel safety issues which should be considered and are applicable to any activity or vessel. Appendix I provides specific additional information, either to general requirements common to all activities and vessels, or directly related to a specific activity. Appendix II gives a list of relevant legislation and existing guidelines which may assist the reader.

2015 Update

The primary changes in this update cover relevant regulatory changes made since 2012 as well as updates to the Reference Documents listed in Appendix II. It is also recommended the guide is read alongside:

- RenewableUK: Offshore Wind and Marine Energy Health and Safety Guidelines (2014)
- G9: Good practice guideline the safe management of small service vessels used in the offshore wind industry (2014)
- Energy Institute: Construction vessel guideline for the offshore renewables sector (2014)

The Energy Institute guideline is intended as a follow on from this publication and provides guidance to developers and the supply chain on the construction of an UK offshore wind project. New/ revised sections of this document that complement this document include:

- 5.1 Vessel failure modes/limitations
- 6 Summary of major (construction) vessel types
- 7 Vessel related assurance audits
- 8 Marine warranty surveyor scope of work
- 9 Major (construction) equipment audit
- 10 Training & competencies (Marine 10.1 & Project Team 10.2)

Summary

It is emphasized that this guidance whilst based on current good practice and state of knowledge in the offshore wind and marine sector, it cannot be assumed to be a definitive or exhaustive reference source. It is ultimately for duty holders to use this guidance and the supporting reference sources alongside their own policies and contractual arrangements to make an informed decision on the selection and operation of any vessel.

1. EFFECTIVE VESSEL SELECTION AND OPERATION

1.1 Vessel Selection

The selection of a Fit for Purpose vessel to operate in the UK REZ has to take into account a wide range of factors including:

- The activity it will be carrying out;
- The conditions likely to be encountered at the site of the activity and during transit to/from the site;
- The duration of the work.

Selection should also consider:

- Competence, experience and training of marine and project crews;
- Procedural and individual company requirements;
- Management systems ensuring safe working;
- Compliance with the appropriate maritime rules and regulations, including valid flag certification;
- Equipment and facilities required to carry out the activity.

The majority of activities can broadly be subdivided into the following steps:

- **Pre operation** – Including selection of the vessel, mobilisation of equipment and personnel to the vessel. This may include installation of equipment onto and/or modification of the vessel;
- **During operations** – Carrying out the activity e.g. surveys, installation of meteorological monitoring equipment and masts, transits, emergency support;
- **Post operation** – De-mobilisation of equipment and personnel including returning the vessel to its pre-hire configuration.

All of the above should take into account the hazards associated with each step and the potential impact on the people and vessel, hence robust risk assessment, using recognised techniques and mitigation of hazards is required. A level of proportionality needs to be applied in relation to the degree of complexity required for the risk assessment technique chosen (Reference ISO 31000 and IEC/ISO 31010).

1.2 Health and Safety Management

Health and safety is fundamental to the successful completion of the activities. Each activity must be driven by risk assessment to ensure the vessel selection process addresses all risks as far as reasonably practicable.

The party (company or individual) with responsibility for the vessel should:

- Operate a Safety Management System (SMS) which complies with the International Safety Management (ISM) Code requirements of the International Maritime Organisation, if over 500 Gross Tonnage (GT) – (ISM Code also applies to passenger and special ships where there is no tonnage limit); **or,**
- Have a Safety Management System approved by its flag state which has been recognised by the MCA and meets UK port state requirements if the vessel is operating in UK territorial waters; **or,**
- Jack-ups should have a documented procedure that includes all the key requirements of the ISM code if not ISM compliant.

Developers and their contractors who have responsibilities for the project and/or defined activity being carried out should:

- Have in place an established and maintained health and safety management system. This should take account the general duties set out under the Health and Safety at Work etc. Act 1974 and applicable delegated legislation (e.g. Management of Health and Safety at Work Regulations 1999, Construction (Design and Management) Regulations 2015 etc.).

There should be clear and effective means to ensure that the health and safety management systems operated by the client/developer interface with those of the contractor/vessel owner (e.g. ISM systems). The main requirement is to ensure there is clear guidance on the status, hierarchy and ownership of the respective policies and procedures between the parties concerned. A bridging document can be used to record this – but if the existing systems of the parties concerned are effective – there is no requirement to produce another document. Whichever approach is followed systems in place should:

- Clarify the status and interface between the contractor's (project) and charterer's (vessel) systems;
- Ensure safe practices are implemented, understood by project and marine crews and are auditable;
- Clearly identifies Emergency Response actions and procedures;
- Clearly identifies incident reporting and recording processes;
- Aligns the systems to a level appropriate to the activity;
- Identifies and resolves areas of confusion;
- Ensures project and marine crew's roles and responsibilities, particularly in the event of an accident, are fully understood;
- Is to a level of detail appropriate to the vessel and the activity.

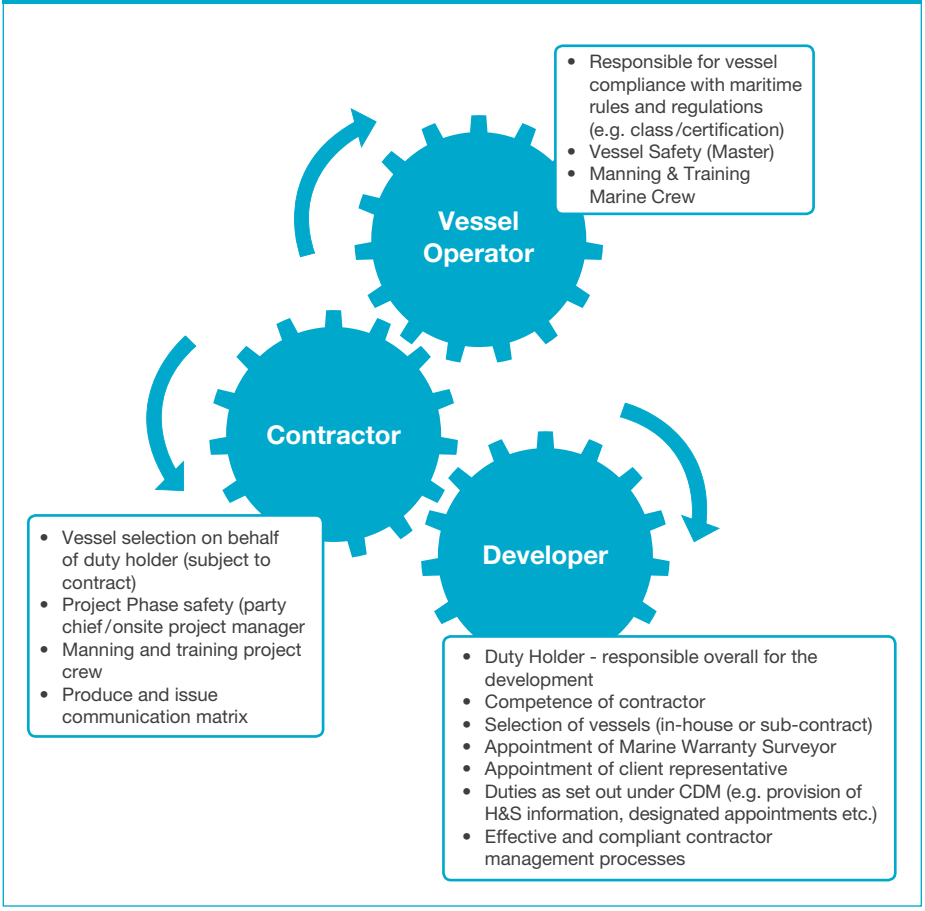
1.3 Role and Responsibilities - Vessel

Ultimately the Master of the vessel is responsible for the safety of the vessel, its crew, and all other personnel on the vessel and will always have overriding authority. However the Master will need to liaise closely with the project leader on the vessel (e.g. client representative) to gain full understanding of the activity and any constraints on the vessel.

- Roles and responsibilities should be clearly defined in the Safety Management System;
- Any person involved in the activity or seeing an unsafe situation should be able to request the operation is immediately stopped if they consider it is unsafe to continue.
- Management should support calls to stop the activity on grounds of safety.

[It is acknowledged that this is a simplified summary not least as the stakeholder composition on board a larger vessel will require multiple communication lines between Master, Client(s) and Contractor(s)]

Figure 2: High Level Summary of Responsibilities – Those involved in ensuring the selection of a *fit for purpose* vessel whilst acknowledging there may be overlaps.



* Figure is illustrative only. Actual responsibilities may vary.

1.4 Roles and Responsibilities - Organisational

The responsibilities of the various organisations involved are potentially complex and vary between developers and their various contractors. A general overview of typical areas of responsibility is summarised in Figure 2.

In addressing some of the complexities a communication matrix can be produced by the contractor and provided to the vessel owners and vessel master. This can assist when defining both who and how to make contact and in what circumstances it should be carried out.

1.5 Training and Competence

On the selected vessel two groups of people need to be considered:

- Marine Crew – The normal vessel crew who as seafarers will have certification to prove their competencies in line with the appropriate maritime rules and regulations.
- Project Crew – Personnel on the vessel to conduct specific tasks related to the activities being undertaken to develop, construct, operate or maintain the energy development. Their areas of expertise will be related to their work and they are considered to have minimal direct maritime experience unless they have fulfilled the required role previously. Project crew may be considered passengers or special personnel as described in MGN 515(M)/516(M).
- Marine and Project crew competencies should be identified by the respective employer and confirmed by the contractor that they are appropriate to the type of vessel selected and the activities to be carried out.

1.5.1 Marine Crew

Dependent on the type of vessel and other factors, such as distance from safe haven*/shore and crew manning requirements for extended operations, the marine crew should be trained to meet the requirements of either:

- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW); **or,**
- RYA certificates with commercial endorsement appropriate to the vessel type (may have limitations which need to be considered); **or,**
- Equivalent approved by UK Flag administration (MCA).

Note: The guidance has not fully considered the applicability of MGN 411 (Training and Certification Requirements for the Crew of Fishing Vessels). However this training maybe suitable and so competent advice should be sought before recognising this training.

*The term “safe haven” used here is not defined and is for descriptive purposes only. Most marine regulations are only defined in terms of distance from shore.

1.5.2 Project Crew

Project Crew training should be based on risk assessment of the activity to be carried out, company policy and any project specific requirements. The following is an indicative summary:

- Specialist training in their particular areas of expertise appropriate to the activity.
- Marine safety training either:
  - RenewableUK - Marine Safety Training (MST); **or,**
  - GWO Sea Survival; **or,**
  - STCW Personal Survival Techniques (PST); **or,**
  - Basic Offshore Safety Induction and Emergency Training (BOSIET). (Note: Where transfer to turbine foundations, TP's etc is required – or RUK or GWO courses are recommended)
- Safety Induction Training on joining the vessel covering the requirements of MCA - Marine Guidance Notes MGN 515(M) or 120(M) which broadly covers:
  - Being able to communicate with other persons on board on elementary safety matters and understand safety information symbols, signs and alarms.
  - Actions to take in emergencies (e.g. man overboard, fire, raising alarms and reaction to alarms sounding, donning life jackets, accidents or medical emergencies operation of safety equipment).
- Regular refresher training to maintain awareness and standards. It is important to ensure there is a consistent approach determining the nature and frequency of any repeat/refresher training. This should take account the refresher intervals stipulated in applicable standards (e.g. RUK/GWO).
- Project crews to participate in vessel musters and drills to demonstrate their understanding of emergency duties, alarm systems and all lifesaving and fire fighting equipment and their roles is appropriate.

(Note: The suitability of the marine training should be checked against the scope of the applicable standard/course and the requirements for the project/activity being performed.)

1.5.3 Common Training

Additional specialist training should be provided for either the marine or project crew depending on the activities being undertaken and who is responsible for operating the equipment such as:

- Manual handling;
- Lifting;
- Crane or winch control;
- Working at height and rescue training.

The training requirements should be based on risk assessment and a Training Needs Analysis as appropriate to carry out the activity.

Figure 3: Summary of training requirements Masters for various vessel types

Jack-ups (non-self propelled)	Vessels <24m on load line length	Vessels >24m on load line length <500gt	Vessels >500gt
- No formal training recognised - International Jack-up Barge Owners Association advises on qualifications and competence – Blue log books	- RYA Skipper + commercial endorsement (increasingly being replaced by STCW) - STCW - Demonstration for both is certification and log books	- STCW - Demonstration is by certification and log books	- STCW - Demonstration of compliance by log books

1.6 Medical Training

In the event of an emergency when operating further from shore where it can take a long time to return to harbour or to receive medical assistance from other sources, suitably trained persons should be available. The following are examples of appropriate medical training:

- Masters of Workboats coded to operate in Areas category 0/1, or those vessels over 500gt should have the MCA Proficiency in Medical Care (MGN 96(M)) (formerly Captain's Medical) and a copy of "The Ships Captain's Medical Guide"; **or,**
- Masters of most other coded vessels should have the Proficiency in Medical First Aid certificate (formerly the First Aid at Sea certificate); **or,**
- RYA skippers should have Advanced First Aider training.

In addition to the above risk assessment, the number of persons and the risk profile may indicate additional persons should be trained in the following:

- Proficiency in Medical First Aid (Formally First Aid at sea); or,
- Offshore First Aider level training (Offshore First –Aid Certificate); or,
- Offshore Medic level training (Offshore Medic Certificate).

1.7 Medical Certification

- Marine crew should already hold certification appropriate to the type of vessel to meet MCA and/or STCW requirements such as:

- ENG 1 Seafarer Medical Certificate – legally required by Master of small commercial vessels certified for Area Category 1 or 0 (more than 60 miles from a safe haven); **or,**
- ML5 Medical Report and Certificate - legally required by Master of small commercial vessels certified for Area Category 2 to 6 (no more than 60 miles from a safe haven) and crew members whose normal place of work is on board a vessel which goes to sea; (Note: ML5 may not be considered sufficient for work further offshore); **or,**
- Seafarer Medical Certificates accepted by the MCA MSN 1815 (M) list of countries whose certificates as equivalent to ENG1.

Project crew should have medical certificates to confirm fitness to work offshore either:

- Medicals carried out in accordance with The RenewableUK Medical Fitness to Work Guidelines for near offshore and land based renewable energy projects; **or,**
- Oil & Gas UK (OGUK) offshore medical (formerly United Kingdom Offshore Operators Association (UKOOA) medical certificate); **or,**
- Certificates accepted as part of the North Sea mutual recognition agreement with OGUK as being equivalent; **or,**
- Other medical certificates accepted as part of the North Sea mutual recognition agreement with OGUK.

1.8 Simultaneous Operations (SIMOPS)

Several activities may be underway depending on the phase of the developments lifecycle e.g. bird and mammal surveys continue after the development phase to monitor the effects in the longer term.

The potential exists for conflicting activity requirements and the possibility of many vessels operating in close proximity. This gives rise to the potential for accidents to occur and the need for this to be reduced by hazard identification, risk assessment and careful management.

1.9 Marine Coordination

Effective marine coordination to manage vessel traffic and to address emergencies is essential. It should cover both construction and operational phases and specifically take account the requirements stipulated in MGN 371 - Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues.

Furher information of marine co-ordination are included in RenewableUK: Offshore Wind and Marine Energy Health and Safety Guidelines (2014) and the G9: Good practice guideline the safe management of small service vessels used in the offshore wind industry (2014).

1.10 Sea State / Weather Factors

Consideration of prevalent weather, sea conditions and other metocean data are essential in order to carry out activities in a safe manner therefore:

- The weather limitations of the activity need to be determined taking into account the site and duration of the work;
- The selected vessel must be capable of operations within the expected prevalent conditions with a safety margin to allow for changes in environmental conditions;
- The assessment of weather conditions should include the time to transit to/from the site and distance from a safe haven;
- A common understanding of the limitations of the vessel between all parties is essential;
- Site specific and up to date weather forecasts need to be reviewed to allow planning of the operation;
- Local weather, wind, tide and sea state characteristics and other applicable metocean data must be taken into account at the time of carrying out the activity;
- Local conditions should dictate when operations are safe to continue;
- The environmental conditions should be below the limits set within the risk assessment and procedures for the activity.

Note: The above summary assumes a high degree of objectivity in some of the criteria specified. In practice many of the items especially in relation to vessel and operational performance limits are subjective. Technical innovations and industry learning is able to produce more reliable and predictable metocean data and new technologies are assisting masters and crew make more reliable decisions regarding operation al safety matters (e.g. transfers). Despite the advances being made – it is essential that decisions on sea sate and weather factors:

- Always adopts a precautionary approach concerning the safety and welfare of all persons;
- Are supported by suitable planned and dynamic risk assessment protocols;
- Take account the training and competence of all concerned and especially the status and authority of the vessel Master; and
- That there is a consistent approach to the implementation and operation of agreed procedures and that these are properly communicated to all those concerned.

1.11 Health and Safety

A detailed consideration of occupational health and safety risks are outside the main scope of these guidelines. However these must be taken into account as part of the wider health and safety management systems and arrangements operated by the developer, contactors and others where applicable. Primary reference should be made to the relevant legislation and guidance (e.g. HSE, MCA) and applicable health and safety requirements of the vessels flag state authority as they relate to the foreseeable health and safety risks for the project or activity being undertaken. Occupational health and safety risks that are likely to be of particular relevance to the selection and operation of vessels would include but are not limited to:

- Working at height
- Confined and restricted working spaces
- Electrical & mechanical risks
- Manual handling
- Lifting
- Health & well-being (e.g. fatigue, comfort)
- Hot work
- Noise
- Vibration (e.g. whole body vibration (WBV)
- Exposure to hazardous substances

In every situation suitable and sufficient risk assessments will need to be performed and effective controls put into place that reduce risks to as low a level as reasonably practicable. Further details are set out in the reference documents below as well as via the HSE (http://www.hse.gov.uk/) or the MCA (http://www.dft.gov.uk/mca/). It should be emphasised that the risk assessments should not only take account of the direct risk of injury or harm of the associated activity/task but also the foreseeable consequential risks. For example marine and project crew on small vessels could be exposed to the risk of injury arising from whole body vibration or severe shock as a result of impacts (See MGN 436 (M+F)). In addition the consequential risks associated with vibration may cause fatigue, discomfort (e.g. sea sickness) which may impact on capability and safety.

2. VESSEL SELECTION – REGULATORY ASPECTS

2.1 Regulatory Bodies

Responsibility for health and safety regulation of the offshore renewables industry in the UK resides predominantly between the Maritime and Coastguard Agency (MCA) and the Health and Safety Executives of Britain (HSE) (Includes Northern Ireland (HSENI)). Figure 4 summarises the key regulatory bodies' responsibilities.

The prime responsibility for compliance with maritime requirements laid down in the international maritime conventions lies with the shipowner/operator. Responsibility for ensuring such compliance remains with the flag State.

As a "rule of thumb", if it floats it is regulated by the MCA, if it is fixed to the seabed (on the UK continental shelf) it is regulated by the HSE. A Memorandum of Understanding (MoU) has been agreed between the MCA/HSE/Marine Accident Investigation Branch (MAIB) to help ensure effective co-ordination between the organisations. For example in relation to the transfer between a crew transfer vessel and a turbine in involving for example a wind technician both the HSE and MCA will have potential regulatory authority. For example:

The HSE will probably assume the lead regulatory role on matters that relate to:

- the safety and design of the turbine, the foundations and transition piece
- design, installation and maintenance of the ladders, fenders and associated equipment
- suitability and effective use and maintenance of PPE including fall arrest systems
- training and competence of the wind technician and project crew under their control
- policies, systems and procedures that cover the above including necessary audit and review processes

The MCA will probably assume the lead regulatory role on matters that relate to:

- the suitability and safety of the vessel in accordance with applicable certification and regulator standards
- the training and competence of the masters and crew
- policies, systems and procedures as they relate to the vessel and crew (e.g. ISM)
- welfare and working hours of crew

Accident reporting should be carried out in accordance with Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) and may involve the MAIB if related to marine operations and/or HSE if project related or where there is conflicting interests when a joint HSE/MAIB approach may be appropriate.

Figure 4: Summary of key regulators and agencies responsibilities

MCA	Is a government agency with regulatory responsibility (exercised through the flag and coastal State) for enforcing maritime regulations in respect of occupational health and safety, the safety of ships, safe navigation, welfare, pollution prevention and operations (including manning and crew competency). Health and safety extends to all those on the ship, and all shipboard activities carried out by the crew under the control of the ship's Master.
MAIB	Investigates marine accidents and publishes the outcome of its investigations in order to assist in the prevention of future accidents. The MAIB does not apportion blame or liability, is not a regulator or prosecuting authority, and has no enforcement powers. Responsible for the investigation of accidents involving: • Any vessel in UK territorial waters; and • UK registered vessels, anywhere in the world. Decision to conduct an investigation will depend: • The seriousness of the accident; • The type of vessel and / or cargo involved; and • The potential for the findings of a safety investigation to lead to the prevention of future accidents.
HSE	Statutory body whose main function is to make arrangements to secure the health, safety and welfare of people at work and to protect the public from dangers arising from work activities. The HSE's statutory powers and responsibilities are derived from the Health and Safety at Work etc. Act 1974 (HSWA) and associated relevant statutory provisions including the Docks Regulations 1988 and other related legislation.
IMO	Primary purpose of the International Maritime Organisation (IMO) is to develop and maintain a comprehensive regulatory framework for shipping which includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping. Examples include but are not limited to: • International Convention for the Safety of Life at Sea (SOLAS) • International Regulations for Preventing Collisions at Sea (COLREG) • International Convention for the Prevention of Pollution from Ships (MARPOL) • International Convention on Load Lines (CLL)
ILO	Is responsible for the Maritime Labour Convention 2006, the basic aims of which are to: • Ensure comprehensive worldwide protection of the rights of seafarers; and • Establish a level playing providing decent working and living conditions for seafarers, protecting them from unfair competition on the part of substandard ships
Flag States	Implement treaties including those of the IMO to which they subscribe into National legislation. In the UK this role is carried out by the MCA
Port State Control	Is the inspection of foreign ships in national ports in order to ensure that the merchant ships in the region meet the international safety, security and environmental standards, and that crewmembers have adequate living and working conditions coastal states have jurisdiction for waters in addition to ports and it is possible that a vessel could operate in a states coastal waters whilst operating from a port in another state.

2.2 Certification

Selection of a suitable vessel that is safe and Fit for Purpose for its intended activity needs to take into account the regulations to which the vessel is built, maintained and operated. Regulatory requirements cover a number of aspects including:

- Flag state and classification society requirements;
- The validity and operational limits of statutory certificates issued by, or on behalf of, the flag State;
- The number of crew and non-crew project personnel on board;
- Level of crew training and competence.

The tables (right) summarise key factors for various regulatory regimes.

It should be noted that some vessel types such as Jack-ups which are not powered and fishing vessels may come under different regulations. In the case of Jack-ups, those listed right are applicable, however the list is not exhaustive:

The vessel selected should meet the following broad regulatory factors:

- Cargo ships of 24 metres load line length or above will have some convention-based certification including load line and class certification; or,
- If below 24 metres load line length may not have convention-based certification and may operate under the MCA's Workboat Code; or,
- Vessels below convention size, may not have class certificates, and should be built to UK national standards such as the MCA's Codes of Practice for Small Commercial Vessels (SCV); or,
- Non – UK flagged vessels built to standards acceptable to the MCA for operation in UK waters.

These guidelines do not consider the potential for fishing vessels holding a Load Line Exemption Certificate (LLEC) which may be appropriate for example if a fishing vessel was being used to act as a guard vessel on a project.

Figure 5 – Regulatory Overview

Regulatory Regime	**Critical Factors**
Either "The Workboat Code Industry Working Group Technical Standard"* or those previously built may continue to comply with MGN 280(M).	≤ 12 passengers < 24m Load Line Length Service Restrictions Apply
2000 High Speed Code – as amended	>12 Passengers Service Restrictions Apply
UK MCA Passenger Ship Regulations and EU Directive 98/18/EC Safety rules and standards for passenger ships (EU Pass)	>12 Passengers Service Restrictions Apply
IMO Codes and Conventions e.g. SOLAS, SPS	> 500 GT Does not account for ferrying operations

* It is intended that it will become statutory by the end of 2015.

Figure 6 – Conventions and Codes Overview

Regime	**Critical Factors**
SOLAS (International Conventions) MODU Code Classification Society rules*	Permanently manned[1] jack–ups with certified accommodation
SOLAS (International Conventions) Classification Society rules	Permanently manned[1] jack–ups over 24m
"The Workboat Code Industry Working Group Technical Standard" or UK Load Line Exemption or equivalent flag State certification requirements; or, Equivalent Flag state rules; or, Classification Society rules	Unmanned jack-up, not fitted with certified accommodation* and < 24m Load Line Length
IMO Codes and Conventions e.g. SOLAS, SPS	> 500 GT and within scope of Conventions and Codes. Does not account for ferrying operations

1. Terms as defined in *RenewableUK Guidelines for the Selection and Operation of Jack-ups in the Marine Renewable Energy Industry (2013)*

** Class society rules are not statutory as regards maritime requirements*

Jack-up vessels should comply with the applicable rules dependent on their configuration.

2.3 Vessel Selection

A vessel that is deemed Fit for Purpose for offshore renewable projects will be influenced by a number of operational factors including but not limited to:

- Type, frequency, scale and complexity of the activity;
- Equipment and personnel required to be carried;
- Station keeping requirements;
- Area of operation;
- Number of project crew;
- Vessel endurance / time offshore;
- Crew comfort factors e.g. fatigue, vibration, and other occupational health aspects;
- Transit times;
- Sea, tide and wind operational limits;
- Planned method for transfer;
- Valid and appropriate flag certification.

The above information is often provided in a method statement detailing the schedule of work required. This can also be used during a vessel audit including a Marine Warranty Survey to ensure the vessel selected can achieve the requirements of the activity.

Figure 7 outlines an example that demonstrates some of the considerations required for selecting a type of vessel for the activity based on legislative requirements. It should be noted that this is not exhaustive and other regulations and codes may be appropriate for other vessel types e.g. use of fishing vessels, workboats and jack-ups.

2.4 Audit

Once a vessel type and operational parameters are known, it is important to ensure potential vessels and the vessel operators are audited to confirm:

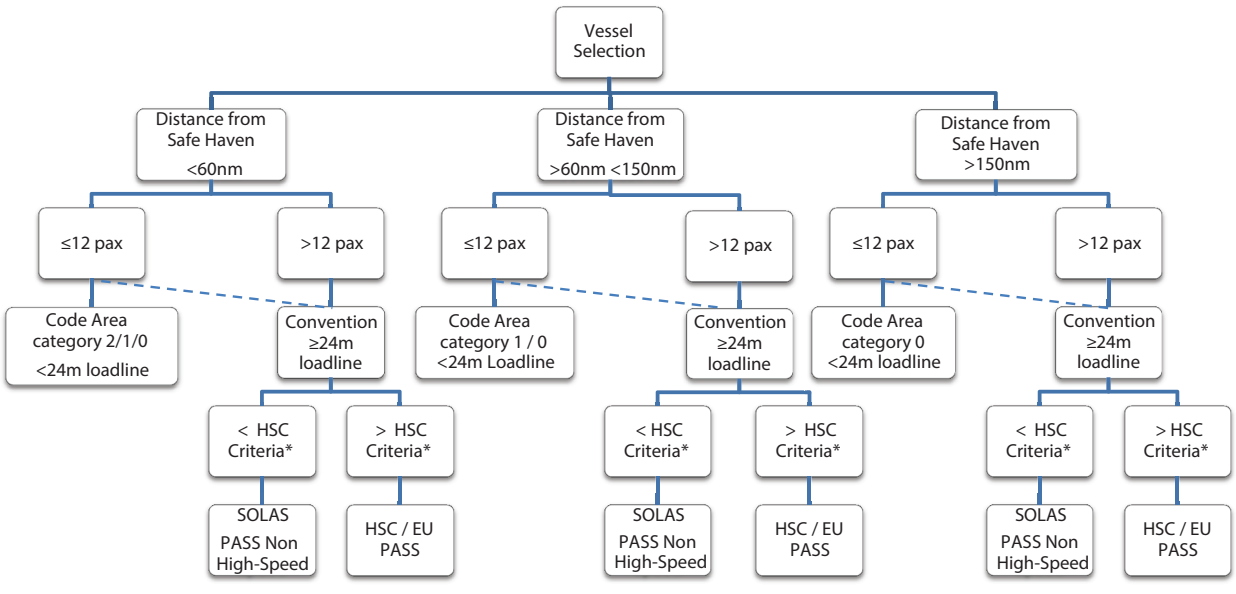
- They are Fit for Purpose;
- Meet all the necessary legislative requirements and any additional requirements of the developers or vessel operators to enhance safety;
- Flag certification and class certification where applicable is in place and current including for installed equipment;
- Equipment has been installed correctly to accepted standards and is Fit for Purpose;
- Safety Management Systems/plans comply with legislative requirements;
- Vessel and office practices are consistent.

This should be through established competent organisations or persons within the developer's (or their contractors) own organisation with suitable marine experience e.g. trained marine surveyors and warranty surveyors.

Examples of audit standards which may be appropriate include:

- International Marine contractors Association's (IMCA) Common Marine Inspection Document (CMID). CMID is supported by the Common Marine Inspection Database (See: www.imcacmid.com/) and a CMID Accreditation scheme (See: http://cmidvesselinspectors.com/);
- Oil Companies International Marine Forum's (OCIMF) Offshore Vessel Inspection Database (OVID) and associated Questionnaire (OVIQ).

Figure 7: Consideration when determining the appropriate certification for a vessel



* HSC Criteria
"High-speed craft" is a craft capable of maximum speed, in metres per second (m/s), equal to or exceeding: $3.7\ \nabla^{0.1667}$ (m/s) (expressed in knots = $7.192\ \nabla^{0.1667}$ (kts) Where ∇ = displacement corresponding to the design waterline (m^3).

Note: Dotted lines indicate where alternative options can be taken.

3. SUITABILITY ASSESSMENT WHEN SELECTING A VESSEL

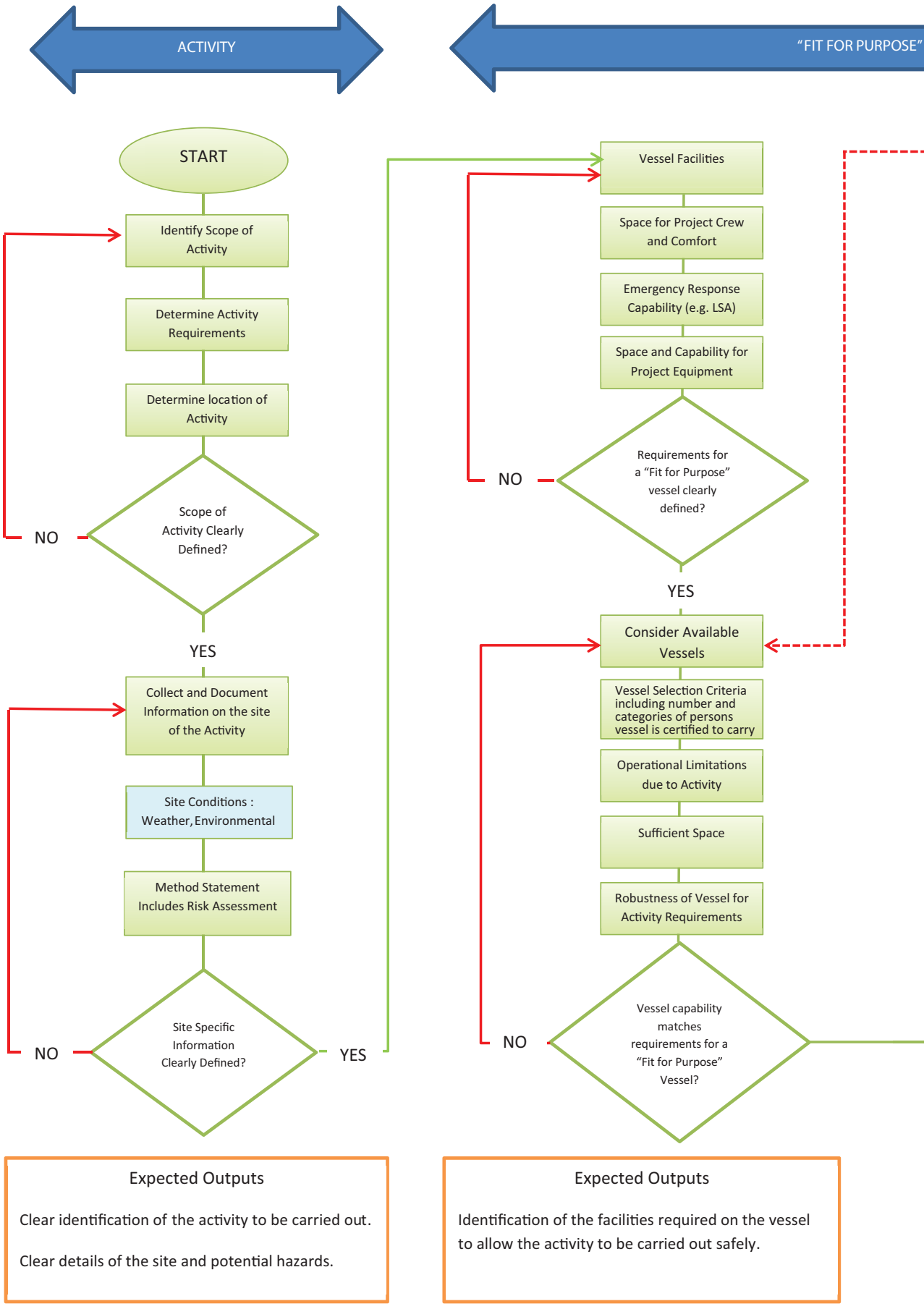
There are a number of significant factors which should to be considered when selecting a vessel which is safe and Fit for Purpose. These factors have been grouped into six key areas which should be considered in order to determine if a vessel can be considered Fit for Purpose and are as follows:

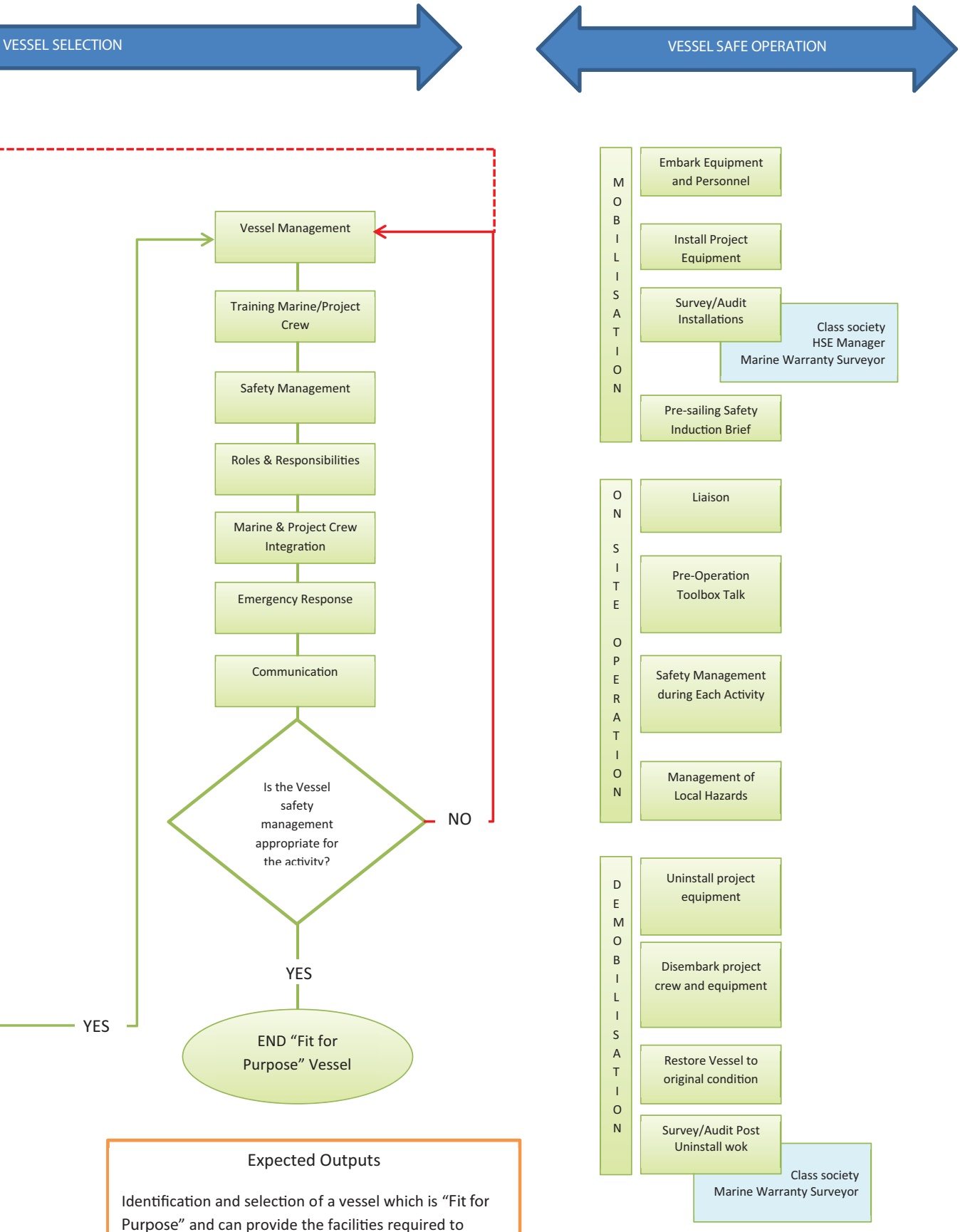
- **Activity to be carried out** –The starting point in selecting a safe and Fit for Purpose vessel is to identify and clearly understand the activity the vessel is required to carry out.
- **Site information** – The area where the activity will be carried out needs to be identified and information provided proportionate to the activity being performed and the foreseeable conditions and risks both to assist vessel selection and also to advise vessel audit/survey teams (e.g. warranty surveyor) to ensure they can take this into account to help ensure the selected vessel is Fit for Purpose.
- **Vessel facilities** – These will be required to meet the needs of the marine and project crew and to provide the operating platform for the equipment required for the activity and the vessels suitability to deal with possible emergency situations. Not all are directly safety related, but they will all have some impact. For example fatigue and whole body vibration can cause discomfort (e.g. sea sickness) which can impact on the capability and safety of persons affected. Features such as suspension seating, ventilation, window position etc. can assist in mitigating these risks.
- **Vessel selection criteria** – Factors which may affect or impinge on the vessel capability should be managed to ensure the vessel selected remains Fit for Purpose in any conditions it can reasonably be expected to encounter whilst carrying out the activity.
- **Vessel Management** – Management of the vessel and the personnel who live and work aboard are key safety drivers to ensure the continued safety and the capability to remain on task. Good communication is vital for the marine and project crew to ensure they have a common understanding and productive working relationship.
- **Incident management** – Effective processes for dealing with incidents is essential. Suitable checks on incidents as they related to the vessel as well as similar vessels can provide valuable information both on the suitability of the vessel but also details on how well incidents and events are managed.
- **Mobilisation and Demobilisation** – Addresses the installation and removal of equipment needed to carry out the activity on the selected vessel which has a significant potential safety impact on the vessel and the installation/removal personnel.

A process flowchart is provided on pages 12 & 13 which gives an overview of the complete selection process whilst further details on the factors which should be considered at each stage are provided on pages 14 & 15. The information provided is not exhaustive, therefore developers and their contractors must ensure a risk assessment is carried out for each activity and an appropriate vessel(s) selected.

[Note: As set out in the Foreword this guide assumes that a tender assessment which included a suitable due diligence process has been carried out to determine the competence of the vessel supplier/owner. In addition to the mainly technical vessel selection capability summarised above, it is important that an assessment is made as to the competence, experience and overall capability of the vessel owner is also taken into account.]

Figure 8: "Fit for Purpose" Vessel Selection Process





Expected Outputs

Identification and selection of a vessel which is "Fit for Purpose" and can provide the facilities required to ensure the activity can be carried out in a safe manner.

Figure 9: Vessel Selection Factors to Consider

Vessel Selection Criteria

Stability
- Effect of Additional Equipment Installation
- Effect of Installed Equipment Operation

Operational Limitations due to Activity
- Capacity for Fuel to Stay on Station
- Interface Issues - Vessel to Project Equipment
- Interface Issues - Vessel to Activity
- Ability to Hold Position and/or Track

Sea Keeping Ability
- Station Keeping Capability
- Prevelant Weather / Sea Conditions

Structural Strength
- Effect on Structure of Operation of Installed Equipment
- Deck Strength for Installation of Equipment
- Prevalant Weather / Sea Conditions

Spatial Constraints
- Facilities
- Exclusion Zones
- Access
- Deck Space

Environmental Impact
- Emissions
- Accidental Pollution

Noise / Vibration Levels
- Comply with the Regulations
- Potential Impact on Wildlife

Vessel Management

Training
- Marine Crew Training
- Induction Brief on Activity for Marine Crew
- Project Staff Marine Training
- Induction Brief for Project Staff on Joining Vessel

Communication
- Good Communication Between the Marine and Project Crews is Essential
- Clear Communication Between Vessel and Shore Authorities
- Effective communications with project and vessel crew to raise concerns

Vessel Safety Management System / Plan
- ISM / SOLAS
- Risk assessment
- Safe procedures
- Emergency procedures
- Mitigation

Project Health & Safety Plan
- HSE / CDM
- Risk assessment
- Safe Procedures
- Incident/accident and near miss reporting procedures
- Emergency procedures /ERCoP
- Mitigation

SMS 'Bridging' Document
- Should Clarify Differences Between Vessel SMS and Project H&S Plan
- Clarify when ISM / CDM applies
- Ensure Clear Understanding Between Marine Crew & Project Staff
- Emergency Response for Own Vessel and for Other Vessels

Clear Roles & Responsibilities
- Identification of who Operates Equipment Marine and/or Project Crew
- Master & Project Staff Lead

Project Staff Integration
- Liaison Between Master and Project Staff Lead / Company Representative
- Regular 2-way performance reviews during the charter period

Mobilisation & De-mobilisation

General
- Suitable CMID surveys/assessment
- Vessel suitability surveys

Access
- To/From Quayside for Personnel, Ease and Method (e.g. Ladders)
- Around Equipment When Installed

Conditions
- Weather
- Tide

Installation or Removal
- Welding
- Bolting
- Sea Fastenings
- Hot Working (Fire Hazard)
- Lifting

Crew Concerns
- Ineffective marine coordinates including (Early / Late Arrival Departure Particularly at
- Fatigue and hours of rest
- Other issues relating to PPE, procedures and facilities

Space
- Sufficient Deck Space for Required Equipment Layout & Safe Access to Operate

4. CONTRACT / PROJECT REVIEW

The summary below assumes a formal end of contract review following demobilisation. However it is good practice to ensure there are regular reviews throughout the charter of the vessel and not just rely on feedback on completion.

Following demobilisation it is good practice for all parties concerned to take the opportunity to review and share relevant experiences and lessons learned arising from the project or activities undertaken. These could cover but are not limited to:

- Feedback on any incidents/near misses;
- Unexpected/unforeseen conditions or events;
- Adequacy of:
  - Pre-contract information and project scope
- Activity/site/vessel
  - Training
  - Supervision
  - Communications
  - Vessel management
  - Procedures
- Suitability of vessel & facilities for project activities actually carried out;
- Suitability of equipment for project activities actually carried out;
- Any recommended actions to consider for future projects.

Conclusions and actions arising out of the review should be shared and communicated between the relevant parties concerned. It is also encouraged that good practice and “lessons learned” experiences that may be identified are shared more widely via relevant industry working groups, reporting schemes and other forums.

5. ABBREVIATIONS/GLOSSARY

BOSIET	Basic Offshore Safety Induction and Emergency Training
CDM	Construction (Design and Management) Regulations
Class / Classification	Classification Society verification that technical standards for the design and construction of vessels are met and maintained
CMID	Common Marine Inspection Document
COWRIE	Collaborative Offshore Wind Research into The Environment
DP	Dynamic Positioning
EC	European Commission
EU	European Union
ERCoP	Emergency Response Co-operation Plan
GWO	Global Wind Organisation
HSC	High Speed Craft
HSE	Health and Safety Executive
HSENI	Health and Safety Executive Northern Ireland
IJUBOA	International Jack-up Barge Owners Association
IMCA	The International Marine Contractors Association
IMO	International Maritime Organization
ISM	International Safety Management Code
LOLER	Lifting Operations and Lifting Equipment Regulations
MAIB	Marine Accident Investigation Branch
MCA	Maritime and Coastguard Agency
MGN	Marine Guidance Notices
MIN	Marine Information Notices
MSN	Merchant Shipping Notices
MST	Marine Safety Training
OCIMF	Oil Companies International Marine Forum
OVID	Offshore Vessel Inspection Database
OVIQ	Offshore Vessel Inspection Questionnaire
Port State	In the UK this is the MCA
PST	Personal Survival Training
PUWER	Provision and Use of Work Equipment Regulations
REZ	Renewable Energy Zone
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RUK	RenewableUK
SCV	Small Commercial Vessels
SIMOPS	Simultaneous Operations
SMS	Safety Management System
SOLAS	[International Convention for the] Safety of Life at Sea
SPS	Special Purpose Ship
STCW	[International Convention for the] Standards of Training, Certification and Watchkeeping
UKOG	Oil & Gas UK
UKOOA	United Kingdom Offshore Operators Association (now UKOG)
UXO	Unexploded Ordinance
WBV	Whole Body Vibration – The effects upon the body of prolonged vibration and/or impacts

APPENDIX I: ACTIVITY SPECIFIC FACTORS

This appendix discusses general factors associated with specific activities which may impact on vessel safety. The examples provided are not exhaustive. These factors, which all relate to either the capability of the vessel or specific hazards, should be considered when selecting vessels to ensure that as far as reasonably practicable the vessel is safe and Fit for Purpose. These activities are not an exhaustive list and risk assessment should be carried out to determine any specific requirements prior to commencing the activity.

Onsite Operations

This relates to all activities carried out by the marine and project crews to achieve the aims of the activity for which the vessel has been selected in a safe manner. Items below may vary depending on whether specified equipment is installed or not.

- Deployment of equipment including lifting activities must be risk assessed and appropriate mitigations instigated;
- Vessel manoeuvrability may be compromised during equipment deployment, recovery or operation. If towing is required, the Master must take this into account and discuss with the project crew leader;
- Other vessels may be operating in the same area therefore marine coordination between vessels must be undertaken to an appropriate level;
- All marine and project crew must be made aware of any access restrictions whilst operations are underway;
- The installed equipment will add occupational hazards which are additional to the normal hazards found on the vessel. Marine and project crew must be made aware of any issues;
- To operate equipment, lifting and movement of equipment may be required. These must be managed effectively and carried out by suitably qualified and experienced personnel;
- The installed equipment and the activities being carried out may impact on the vessel operation. Therefore, the Master and the project crew leader must liaise closely to mitigate any hazards. These should be identified at an early stage and be addressed in the safety documentation;
- Scope and arrangements for vessel operations during hours of darkness;
- Toolbox talks should be carried out prior to any operation to ensure all those involved are aware of what is being carried out and what the hazards are particularly taking into account local conditions.

Bird, Fish and Mammal Survey Specific

These monitor the trends in populations in order to establish the risks and assess the potential impacts an offshore development will have on the marine population at the site.

- Survey requires working at minimum working eye height of 5m therefore safe access to/from the survey position must be provided;
- Safe and secure seating for seabird surveys to avoid the need to stand and attempt to hold binoculars and other equipment for long periods;
- Survey positions should be located so that there are no radiation effects from the vessels transmitters (e.g. Radars);
- Protection from adverse weather conditions must be provided (e.g. heat/cold/wind/spray);
- Vessel manoeuvrability may be constrained when trawls/towed equipment are deployed.

Benthic Survey Specific

This involves an investigation of the seabed environment by visual exploration and sampling to establish the existence and quantity of any sensitive and important benthic species.

- Hazardous (toxic) material may be recovered by grabs or required for sampling (including radioactive) therefore appropriate precautions should be implemented;
- Toxic substances are used to preserve samples (e.g. formaldehyde) or to clean equipment hence risk assessment should be carried out to ensure sufficient ventilation in the work area and PPE is provided;
- Site assessment should consider the potential presence of Unexploded Ordinance (UXO) which may be caught in trawls/grabs and precautions instigated;
- Vessel manoeuvrability may be constrained when trawls/towed equipment are deployed.

Vessel Traffic Survey Specific

The Vessel Traffic Survey is required to monitor the vessel traffic and routing in the area of interest.

- Equipment installed to carry out the vessel traffic survey must not affect the operation of the existing vessel's navigational safety requirements (e.g. loading on signal line, mutual interference, electromagnetic capability (EMC).
- Manoeuvring may be limited during survey, but should be managed by the vessel's Master in consultation with the project/survey crew leader.

Geophysical Survey Specific

The survey purpose is to establish sea floor bathymetry, sea bed features, water depth as well as identifying hazardous areas on the seafloor to give a good understanding of the seabed and any subsea features.

- During operations vessel manoeuvrability will be limited due to towed equipment and will require appropriate precautions to be implemented by the vessel's Master to avert collisions and/or close quarter situations;
- If crew transfers are required appropriate precautions should be taken (see Crew transfer activity);
- Installed equipment must be actively managed and both the vessel and project crew made aware of constraints and hazards associated with its location, operation, access restrictions and operational limitations imposed on the vessel.

Geotechnical Survey Specific

This survey obtains information on the physical properties of soil and rock underlying (and sometimes adjacent to) a site where a foundation is proposed to be built. It includes surface and subsurface exploration of a site and usually involves in-situ testing, subsurface sampling and laboratory testing.

- Notices to Mariners should be posted prior to commencement of operations (note: likely to apply to all activities);
- During operations vessel manoeuvrability will be limited due to requirement to remain stationary. Appropriate precautions need to be implemented to avert collisions and/or close quarter situations;
- Vessel stability must be assessed and approved prior to carrying out the operation due to use of drilling equipment via a moon pool, or cantilever arrangement over the side;
- Provision should be made for the collection (planned or accidental), management & storage of hazardous materials;
- Site assessment should consider the potential for encountering shallow gas and mitigation measures implemented where necessary;
- Site assessment must consider the seabed composition (prevention of jack-up leg “punch through”) and potential presence of navigational hazards and obstacles (e.g. cables, outcrops, pipelines and wrecks);
- Site assessment should consider the potential presence of Unexploded Ordinance (UXO) which may be caught in towed equipment or struck during drilling and precautions instigated.

Installation of Meteorological and Oceanographic Equipment Specific

This activity is to monitor and analyse meteorological and oceanographic conditions at the site which is vital in the development of any offshore energy project.

- Vessel specific risk assessment and procedures need to be developed for deployment and recovery of equipment;
- Lifting arrangements on the buoys shall be assessed especially for recovery when the buoy has been exposed to seawater for a long time;
- Recovery of equipment is hazardous to the vessel as wires/ropes may become entangled with the propeller;
- Hazards associated with the deployment and recovery of equipment relates to deck space to operate equipment safely and potential limitations on vessel traffic in the area;
- Vessel stability must be assessed and approved prior to carrying out the operation when deploying/recovering equipment over the side.

Crew transfers and service vessels

It is considered good practice to avoid any ship to ship transfer of personnel whilst at sea. Ideally transfers should be carried out with the vessel berthed alongside.

- When ship to ship transfers are unavoidable, these should be undertaken following a risk assessment and in accordance with MCA guidance MGN 432 (M+F) - Safety during Transfers of Persons to and from Ships. This also refers to SOLAS - Chapter V Safety of Navigation, Regulation 23 Pilot transfer arrangements;
- Clear briefings must be given before the activity and these should be based on a current risk assessment and take into account the local conditions at the time of transfer;
- Transfers must only be carried out using “man-riding” approved and certified equipment. In all but exceptional circumstance the use of man riding baskets is not acceptable for any transfer of personnel. (See IMCA Guidance on the Transfer of Personnel to and from Offshore Vessels and Structures - IMCA SEL 025 Rev)

APPENDIX II: REFERENCE DOCUMENTS

In addition to the references below we would draw attention to the additional sources set out in the following publications:

- RenewableUK: Offshore Wind and Marine Energy Health and Safety Guidelines (2014)
- G9: Good practice guideline the safe management of small service vessels used in the offshore wind industry (2014)
- Energy Institute: Construction vessel guideline for the offshore renewables sector (2014)

Health and Safety

Legislation

- Control of Substances Hazardous to Health Regulations (COSHH), HSE, 2002 (as amended)
- Diving at Work Regulations 1997
- Health and Safety at Work etc. Act 1974
- Lifting Operations and Lifting Equipment Regulations (LOLER) 1998
- Management of Health and Safety at Work Regulations 1999
- Manual Handling Operations Regulations 1992 (as amended)
- Merchant Shipping and Fishing Vessel (Control of Noise at Work) Regulations 2007
- Merchant Shipping and Fishing Vessel (Lifting Operations & Lifting Equipment) Regulations 2006 to 2008
- Merchant Shipping and Fishing Vessel (Manual Handling Operations) Regulations 1998
- Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007
- Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997
- Provision and Use of Work Equipment Regulations (PUWER) 1998
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
- The Construction (Design and Management) Regulations 2015 (CDM)
- The Work at Height Regulations 2005

Standards & Guidance

- BS 7121-11: 1998 Code of Practice for Safe use of Cranes. Offshore Cranes
- Codes of Practice for Small Commercial Vessels (SCV), MCA, 2004
- DNV “Rules for Planning and Execution of Marine Operations”
- Guidelines for the Selection and Operation of Jack-ups in the Marine Renewable Energy Industry (version 1), British Wind Energy Association (BWEA), 2008
- HSE - Guidance on Procedures for the Transfer of Personnel by Carriers
- HSE - Technical guidance on the safe use of lifting equipment offshore - HSG221
- IJUBOA - Site Checklist - T03
- IMCA M 187 Guidelines for lifting operations
- IMCA M 203 - Simultaneous Operations, 2010
- IMCA M149– Common Marine Inspection Document
- IMCA M189 - Marine Inspection Checklist for Small Workboats
- IMCA R 020 – Remotely operated vehicle intervention during diving operations
- IMCA S 016- Mobilisation Checklist for Offshore Survey Operations (Survey equipment focus)
- IMCA SEL 003 - Guidance for The Initial and Refresher Familiarisation of Vessel Crews (Crew focus but has good areas to cover for any persons on board)
- IMCA SEL 007- Guidance on Basic Safety Training and Vessel Induction for Non-Marine Personnel Working Offshore
- IMCA SEL 025 – Guidance on the Transfer of Personnel to and from Offshore Vessels
- IMCA SEL 037 – Security Measure and emergency response guidelines
- ISO / IEC 31010 Risk management - Risk assessment techniques
- ISO 31000 Risk Management Principles and Guidelines
- MGN 20 (M+F) Implementation of EC Directive 89/391 – Merchant Shipping and Fishing Vessels (Health And Safety At Work) Regulations
- MGN 371 (M+F) Offshore Renewable Energy Installations Guidance on UK Navigational Practice, Safety and Emergency Response Issues (under review)
- MGN 436 (M+F) Guidance on Mitigating Against the Effects of Shocks and Impacts on Small Vessels
- MGN 515(M) Special Purpose Ships (SPS) Code – Application to Offshore Vessels
- MGN 516(M) Ships Construction Equipment: Use and application of IMO Codes and Guidelines to Offshore Vessels
- MGN 492(M+F), Health and safety at work: Protecting those not employed by the ship owner
- MGN 497(M+F), Dangerous goods – including chemicals and other materials – Storage and use on board ship
- MGN 71(M) Musters, Drills, on-board training and instructions, and Decision Support Systems
- MIN 436(M + F) Code of Practice for Controlling Risks due to Whole-body Vibration on ships
- Offshore wind and marine health and safety guidelines (2014)
- RenewableUK - First aid needs assessment – Guidelines for renewable energy projects (2013)
- RenewableUK - Guidelines for selection and operation of jack-ups in marine renewable energy industry (2013)
- RenewableUK - Health and safety training entry and basic-level health and safety training and competence standards: Scope and application to large wind projects (2014)
- RenewableUK - Incident response: Offshore wind and marine projects
- RenewableUK - Safety circular: Notices to mariners (2013)
- SNAME TR5-5A “Guidelines for Site Specific Assessment of Mobile Jack-Up Units”.
- The Code of Practice for the Safety of Small Workboats and Pilot Boats – MCA

Marine Training for Project and Marine Crew

- Basic Offshore Safety Induction and Emergency Training (BOSIET)
- IJUBOA - Barge Master Training Disciplines - T06
- IJUBOA - Minimum Existing Qualification for a Barge Master - T09
- IJUBOA - Official Barge Training Log Book – the “Red Book”
- IJUBOA - Specific & Practical Skills for a Jack-up Barge Master - TO6
- IMCA S&L 003 - The Initial and refresher Familiarisation of Vessel Crews
- MGN 280/MIN173 - RYA Certificates of Competence
- MGN 448(M), Standards of training, certification and watchkeeping convention, 1978 as Amended Manila amendments: Medical certification, hours of work and alcohol limits
- MIN 469(M), Requirements for updating training in accordance with the 2010 Manila amendments to the STCW convention 1978
- MIN 480(M), New requirements for security training for shipboard personnel
- MSN 1560, Survival at sea
- National Workboat Association - Good Practice Guide for Offshore Energy Service Vessels - April 2015
- Personal Survival Training (PST), STCW
- RenewableUK Marine Safety Training (MST)
- Standards of Training, Certification and Watchkeeping for Seafarers (STCW), IMO

Maritime Labour Standards

- MGN 471(M), Maritime labour convention, 2006: Definitions
- MGN 490(M), Maritime labour convention: Application to small vessels of less than 200 GT that are ordinarily engaged in commercial activities
- MGN 491(M), Maritime labour convention: Application to workboats of 200 GT to less than 500 GT
- MSN 1769(M), International labour organization convention (ILO)178 and recommendation 185 – Concerning the inspection of seafarers’ working and living conditions
- MSN 1842(M), Maritime labour convention, 2006: Hours of work and entitlement to leave application of the merchant shipping (hours of work) regulations 2002 and the merchant shipping (maritime labour convention) (hours of work) (amendment) regulations 2014
- MSN 1849(M), Maritime labour convention, 2006 – On-board complaints procedure
- Workboat Code – Industry Working Group Technical Standard (References MLC)

Vessel Selection and Vessel Operation

- Control of Harmful Anti-fouling Systems on Ships (AFS), IMO, 2001
- IMCA C002 Guidance document and competence tables: Marine division
- IMCA M166 Guidance on failure modes and effects analysis (FMEA)
- IMCA M202 Guidance on the transfer of personnel to and from offshore vessel and structures
- IMCA C 014 – Guidance on Competence Assurance and Assessment – Marine Roles for Small Workboats.
- IMCA Workboat Crew Logbook.
- Incidents by Hazardous and Noxious Substances (HNS Protocol), IMO, 2000
- International Convention for the Prevention of Pollution From Ships (MARPOL 1973/78), IMO, 1973
- International Convention on Load Lines, IMO, 1966
- International Safety Management (ISM) Code, IMO, 2002
- Labour Standards, International Labour Organisation (ILO) Convention No. 147, 1976
- MGN 280 (M), Small vessels in commercial use for sport or pleasure, workboats and pilot boats, alternative construction standards
- MGN 323(M+F), Explosives picked up at sea
- Prevention of Marine Pollution by Dumping of Wastes and Other Matter, IMO, 1972
- Safety of Life at Sea (SOLAS), IMO, 1974
- The International Regulations for Preventing Collisions at Sea (COLREGS), IMO, 1972

Medical

- IMCA C 012 - Medical Guidelines for Non-Marine Crew working in the Offshore Environment: A Guide for Examining Physicians
- Offshore Installations and Pipeline Works (First-Aid) Regulations. 1989 (OFAR)
- Oil & Gas UK (OGUK) offshore medical (formerly United Kingdom Offshore Operators Association (UKOOA) medical certificate).
- RenewableUK Medical Fitness to Work Guidelines for near offshore and land based renewable energy projects
- The Ships Captain’s Medical Guide, MCA, 1995

Bird and Mammal Survey Operations

- Approaches to Marine Mammal monitoring at Marine Renewable Energy Developments, Sea Mammal Research Unit, 2010
- Approved Training courses and Guidelines for Mammal Surveys, European Seabirds at Sea (ESAS)
- Approved Training Courses and Guidelines for Mammal Surveys, Joint Nature Conservation Committee (JNCC)
- JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys, 2010
- Offshore Marine Conservation (Natural Habitats, &c.) Regulations, Parliamentary Under Secretary of State - Department for Environment, Food and Rural Affairs, 2010

- Towards Standardised Seabirds at Sea Census Techniques in Connection with Environmental Impact Assessments for Offshore Windfarms in the UK, Collaborative Offshore Wind Research into the Environment (COWRIE), 2005

Geotechnical and Geophysical Survey Operations

- Geotechnical & Geophysical Investigations for Offshore and Near Shore Developments, International Society for Soil Mechanics and Geotechnical Engineering (2005)
- Guidelines for the conduct of offshore drilling hazard site surveys, International Association of Oil & Gas Producers, 2011
- IMCA S 003 Guidelines for the use of multi-beam echo sounders for offshore surveys
- Marine Soil Investigations, NORSOK Standard (2004)
- Society for Underwater Technology (SUT) - Guidance Notes for the planning and execution of Geophysical & Geotechnical Ground Investigations for Offshore Renewable Energy Projects (2014)

Crew transfer Operations

- IMCA SEL 025 / M 202 - Transfer of Personnel to and from Offshore Vessels
- MGN 432 (M+F) - Safety during Transfers of Persons to and from Ships, MCA, 2011

Miscellaneous

- The International Jack up Barge Owners Association (IJUBOA) Code of Practice, 2011
- MGN 325(M), Helicopter assistance at sea
- MGN 372 (M+F), Offshore renewable energy installations (OREIs): Guidance to mariners operating in the vicinity of UK OREIs
- MIN 444(M+F), MARPOL – Forthcoming amendments to MARPOL Annex IV – Sewage and MARPOL Annex V garbage
- MGN 505(M), Human element guidance – Part 1 fatigue and fitness for duty: Statutory duties, causes of fatigue and guidance on good practice
- MSN 1731(M+F), The merchant shipping and fishing vessels personal protective equipment regulations 1999

The listed MGN documents above is not complete. Other potential guidance notes cover topics such as:

- Young Persons
- Carcinogens and Mutagens
- Chemical Agents
- Artificial Optical Radiation
- Asbestos
- Biological Agents
- Work at Height
- Work equipment (PUWER)
- Lifting operations (LOLER)

Useful Links

- Commissioners of Irish Lights – www.cil.ie/
- Department for Transport – www.gov.uk/government/organisations/department-for-transport
- G9 – www.energypublishing.org/g9/about-ei
- Global Wind Organisation (GWO) – www.globalwindsafety.org/
- Health & Safety Executive (HSE) – www.hse.gov.uk/
- International Hydrographical Organization (IHO) – www.iho.int/srv1/index.php?lang=en
- International Jack Up Barge Operators Association (IJUBOA – www.ijuboa.com/
- International Maritime Contractor Association (IMCA) – www.imca-int.com/
- International Maritime Organisation (IMO) – www.imo.org/Pages/home.aspx
- KIS – ORCA – www.kis-orca.eu/
- Marine Accident Investigation Branch (MAIB) – www.gov.uk/government/organisations/marine-accident-investigation-branch
- Marine Management Organisation (MMO) – www.gov.uk/government/organisations/marine-management-organisation
- Marine Scotland – www.gov.scot/About/People/Directorates/marinescotland
- Maritime & Coastguard Agency (MCA) – www.gov.uk/government/organisations/maritime-and-coastguard-agency
- National Workboat Association (NWA) – www.workboatassociation.org/
- Nautical and Offshore Renewable Energy Liaison (NOREL) group – www.thecrownestate.co.uk/energy-and-infrastructure/offshore-wind-energy/working-with-us/norel/
- Northern Lighthouse Board – www.nlb.org.uk/
- Offshore Renewable Energy Emergency Forum (OREEF) – www.renewableuk.com/en/our-work/health-and-safety/the-offshore-renewable-energy-forum-oreef.cfm
- RenewableUK (RUK) – www.renewableuk.com/
- Society for Underwater Technology (SUT) – www.sut.org/
- The Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) – www.thecrownestate.co.uk/energy-and-infrastructure/offshore-wind-energy/working-with-us/floww/
- The Crown Estate (TCE) – www.thecrownestate.co.uk/
- Trinity House – www.trinityhouse.co.uk/
- UK Chamber of Shipping – www.ukchamberofshipping.com/
- UK Hydrographic Office (UKHO) - www.ukho.gov.uk/Pages/home.aspx

Please note: The reference documents and links listed here are not exhaustive.

renewableUK
The voice of wind & marine energy

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Our vision is of renewable energy playing a leading role in powering the UK.

RenewableUK is the UK's leading renewable energy trade association, specialising in onshore wind, offshore wind and wave & tidal energy. Formed in 1978, we have an established, large corporate membership ranging from small independent companies, to large international corporations and manufacturers.

Acting as a central point of information and a united, representative voice for our membership, we conduct research; find solutions; organise events, facilitate business development, lobby and promote wind and marine renewables to government, industry, the media and the public.

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