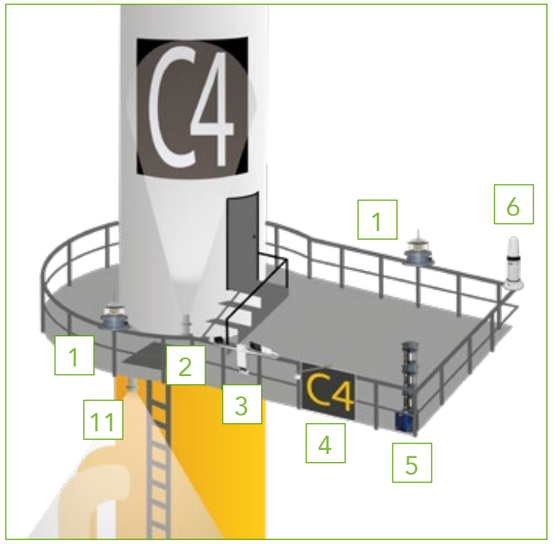
MSM OFFSHORE

Offshore Wind Farm

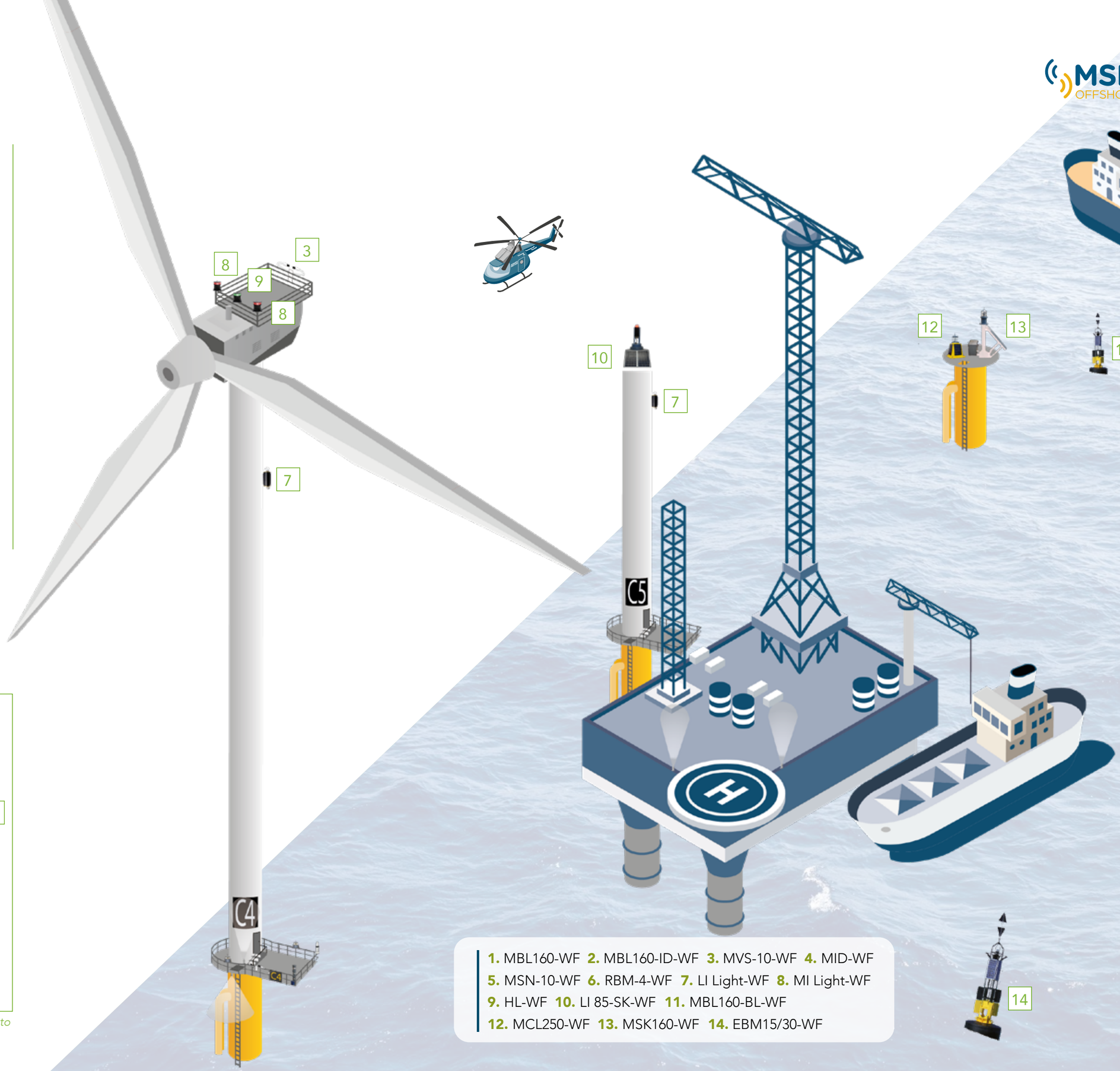
Marine AtoN and Lighting Equipment

Mediterráneo Señales Marítimas introduces its wide range of products especially designed to mark offshore wind farms and platforms, both temporally (during its construction) and permanently.

These products stand out for their high resistance under the harshest marine conditions, their easy installation, their compliance to the Standards and requirements concerning those sites, as well as their availability and reliability.
Each equipment installed on wind turbines or platforms features several elements that, connected to each other, configure an aids-to-navigation network monitored and controlled by a global system in the wind farm or platform.



The scale of the products has been altered in the illustration to get a better overview.



1. MBL160-WF **2.** MBL160-ID-WF **3.** MVS-10-WF **4.** MID-WF
5. MSN-10-WF **6.** RBM-4-WF **7.** LI Light-WF **8.** MI Light-WF
9. HL-WF **10.** LI 85-SK-WF **11.** MBL160-BL-WF
12. MCL250-WF **13.** MSK160-WF **14.** EBM15/30-WF

Marine AtoN and Lighting Equipment

Permanent Marking

MBL160-WF-2

LED marine flashing lantern with a nominal 2 nm range to mark IPS, providing a great optical efficiency with a low consumption.

MBL160-WF-5

LED marine flashing lantern with a nominal 5 nm range to mark SPS, based on an innovative lens system to obtain the maximum luminous output.

MBL400-LD-WF

LED marine flashing lantern with a nominal 10 nm range, with a great optical efficiency and low consumption, for marking of Isolated WTG, Meteorological Masts and other Individual Structures.

MTA

The MTA unit is an AIS AtoN transponder device housed in a IP 67 watertight box, providing automatic information on the GPS position of the marine Aid to Navigation.

MVS-10-WF

Visibility sensor designed for general meteorological applications where accurate and reliable visibility measurements are required.

RBM-4-WF

Radar beacon that works in marine X and S bands, providing information to navigators under whatever metereological conditions.

MSN-10-WF

The MSM foghorn model MSN-10-WF automatically provides a 360° beam of sound in the horizontal plane, specifically designed to be installed in places with thick fog or in off-shore platforms. Designed as an aid to navigation, it provides an audible range over 2 nautical miles.

Lighting

MBL160-BL-WF

Boat landing light providing the required safety illumination in landing situations.

MBL160-ID-WF

Flood light fitted with high-intensity LED diodes. Designed to illuminate the identification panel of wind turbines.

MBL160-HL-WF

Heli light fitted with LED diodes using the latest technology to obtain great efficiency.
Designed for lighting helicopter corridors.

MID-WF

Marking Sign Set, designed for the easy ID marking of offshore wind turbines at night.

Other Optional Equipment

MSIC-WF

An IP surveillance camera with embedded image management software, multi-camera recording management, alarm motion detection, etc. Fitted inside our lantern housing, thus providing an IP 68 protection degree.

ST-WF

Sonar Transponder for use in offshore wind farms, in order to avoid the collision of a submarine with a pylon.

RADAR

Radar solution that provides all required information for a safety area.

Marine AtoN and Lighting Equipment

Temporary Solutions

EBM15/30-WF

Elastomer Buoys particularly designed for both sheltered and open-sea waters, since they are available in diameters from 1.5 to 3 metres, able to hold heavy moorings. Ideal for temporary beaconing of off-shore wind farms, and to mark the exclusion zone.

MCL250-WF

LED marine flashing self-contained lantern for temporary marking applications.

MSK160-WF

Solar kit, conceived to hold a LED marine lantern together with its own solar power supply system in a compact and self-powered array for temporary marking applications.

Control and Monitoring Systems

MFGPS

Position and synchronisation module, it is a device with double function.

MFAIS

AIS AtoN transponder devices integrated inside our LED lanterns provide automatic information on the GPS position of the marine navaid.

MMB 02

The MMB 02 daughter board is a universal device especially designed for aids-to-navigation equipment monitoring. Due to its versatility, it is ideal for offshore platforms, since all the navaids can be controlled by it.

MPRO GPS 2000

Active receiving antenna for the 1575 MHz NAVSTAR GPS Satellite Navigational System for Maritime and Land-mobile use. It is especially designed as the perfect complement of the MFGPS Position and Synchronisation Module.

GLOBAL NETCOM OFFSHORE

Remote Monitoring Multicentre provides an easy way to obtain information and interacts with the different remote stations, displaying clearly the data on a computer screen.

VeTraSur

Vessel Traffic Survey Software to create alerts in restricted areas of navigation, record collisions identifying the vessels, and prevent possible incidents.

Control Panel

MSM Control Panel is ready to manage all the functionalities by groups of lighting or of the system as a whole. It can be custom-made adapted to each specification and prepared for remote monitoring.

Aviation Obstruction Lights

MI Light-WF

Medium Intensity Obstruction Light, with extremely reliable and stabilised light output. It can be adjustable to the specific country requirements (ICAO, CAP 168, BMVBM, CASA, etc.)

HL-WF

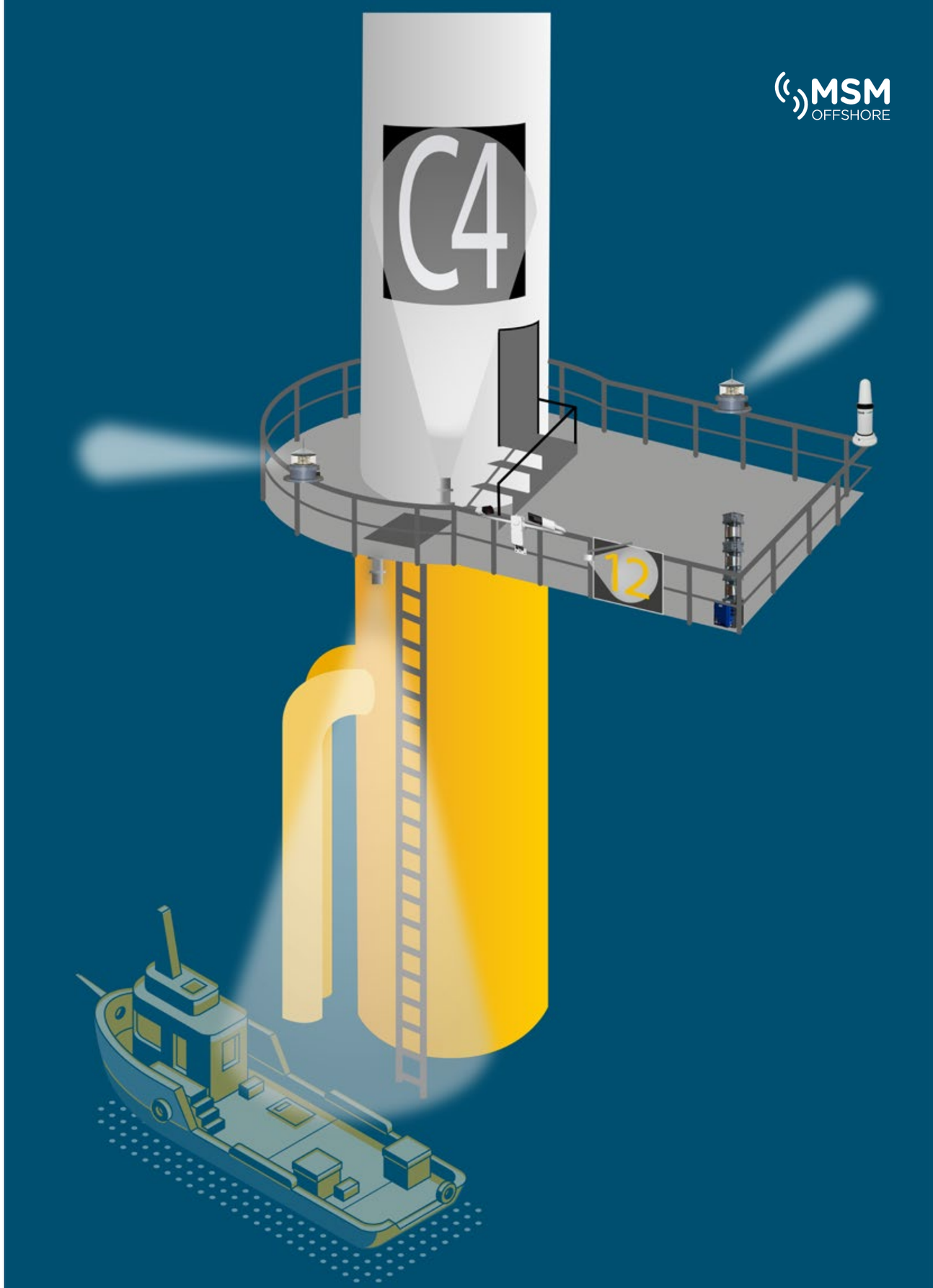
Helihoist Status Light located on the nacelle to indicate to pilots the safety status of the wind turbine before any hoist operation.

LI Light-WF

Low-Intensity Obstruction Light, with extremely reliable and stabilised light output. It can be adjustable to the specific country requirements (ICAO, CAP 168, BMVBM, CASA, etc.)

LI 85-SK-WF

Solar Low-Intensity Obstruction Light Kit. It includes battery and cabinet, solar panel, charge regulator, cables, and obstacle light. Designed to give years of maintenance-free operating time.



STANDARDS and Recommendations

MSM Offshore product range has been developed based on the IALA Recommendation O-139 on The Marking of Man-Made Offshore Structures.

According to this Recommendation, Isolated Wind Turbine Generators (WTG) or other individual structures (such as meteorological mast or offshore transformer/substation) should be marked with white flashing lights (FL Mo (U) W ≤15s) with a nominal range of 10 nm. For floating structures, it is recommended to consider a larger vertical divergence to maximize visibility.

For groups of structures, Offshore Wind Farms (OWF), the marking should distinguish between Significant Peripheral Structures (SPS), defined as significant points at the periphery of the OWF with a distance between them not exceeding 3 nm, and Intermediate Peripheral Structures (IPS) selected on the periphery of the OWF. The distance between IPSs or the nearest SPS should not exceed 2 nm.

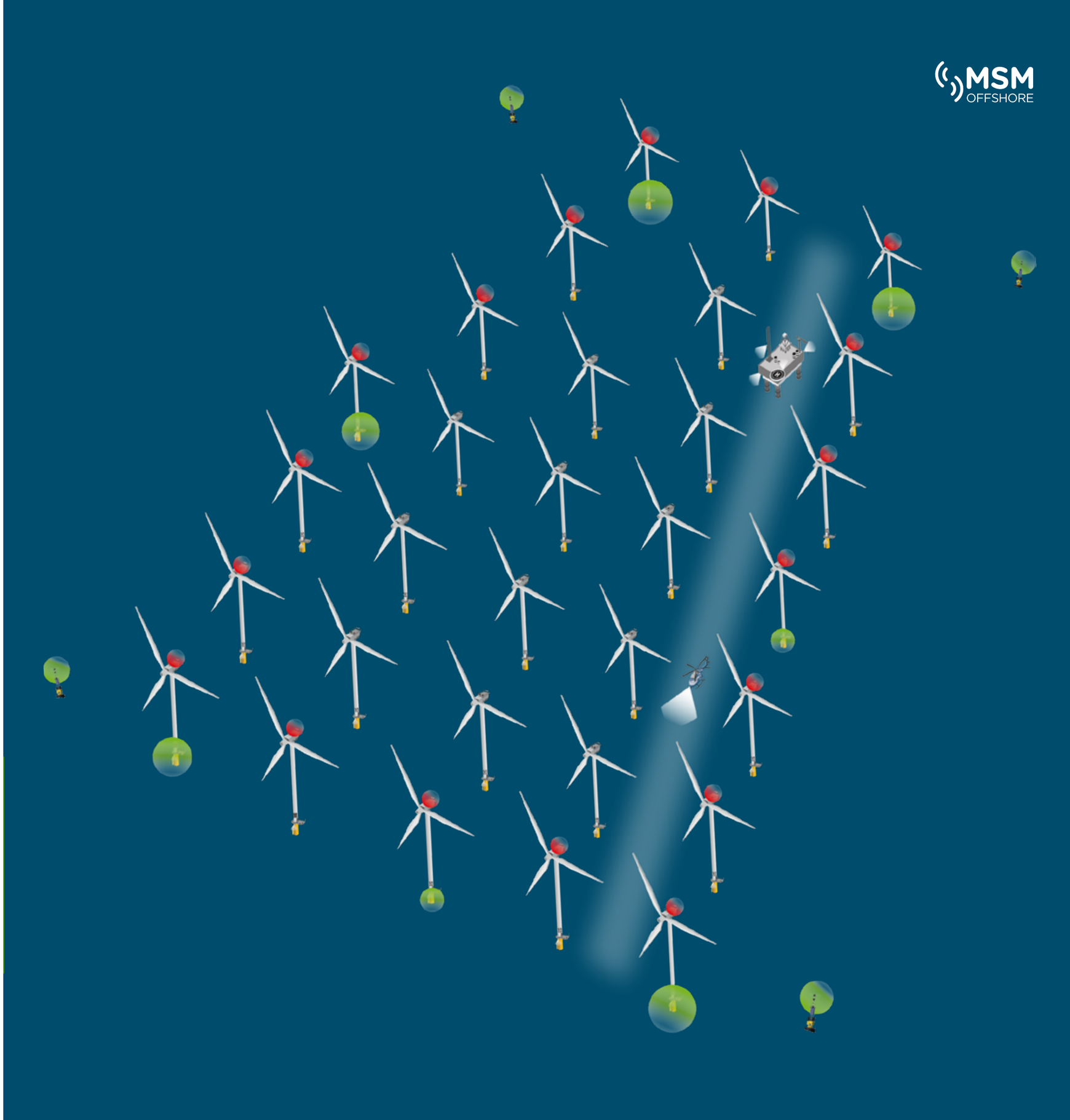
SPS should be marked with flashing yellow lights with a range of 5 nm, with a Special Mark flash character, and with synchronisation (recommended).

IPS should be marked with flashing yellow lights with a range of 2 nm, and with a different flash character than SPS.

The lights should be visible from all directions; therefore at least three lanterns should be installed on each structure to be marked to ensure a 360° coverage. In addition to the lights, other AtoNs should be considered, including: Fog horn and detector with a minimum range of 2 nm, if required due to the visibility, topography and vessel traffic in the area of the OWF, Racon when it is required to identify a particular structure, AIS AtoN to enhance the system and provide more safety for maritime traffic.

Additionally, buoys or beacons may be placed for temporary beaconing during the construction and decommissioning of OWF, or permanently to define a specific perimeter, channels through a group of structures, etc. Finally, for more practicality, remote monitoring of the whole system should be considered.

As IALA determine the appropriate system should be done in accordance with local competent authorities, **MSM Offshore** ensures the study of specific projects and prepares custom-made solutions for every case.



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