The Spatial Planners' guide to distances between Shipping & Offshore Renewable Energy Installations

Fairway Defined as the navigable portion within a sea-area, river, harbour, or other open or partly enclosed body of water that is commonly used by seafarers.

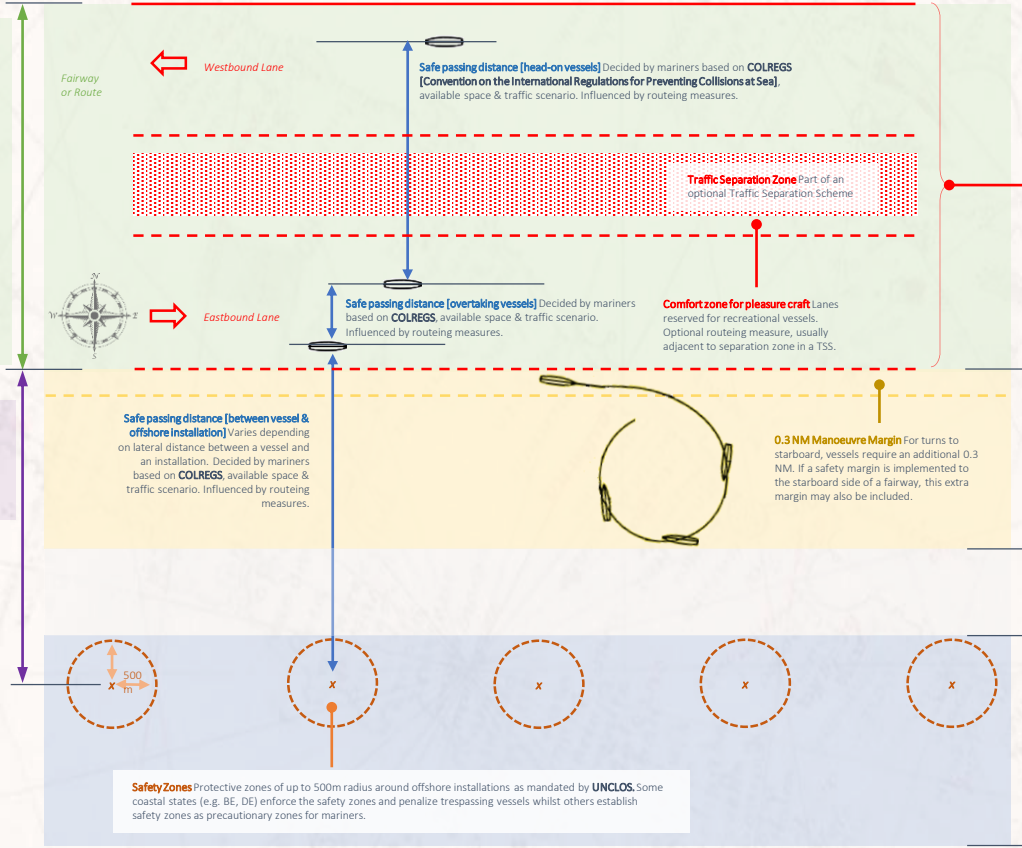
If a **fairway** is *marked* on nautical charts, it is considered to be an official '**route**'. A **route** may be mandatory or recommended for seafarers to follow. A **route** is generally created following a submission to IMO by Coastal States using the **GPSR [General Provisions on Ships' Routeing]** guidelines. A route may be created to ensure safe and efficient navigation. Solid lines mark mandatory edges of **routes**: it is obligatory for seafarers to stay within a solid line unless there is an emergency which necessitates a manoeuvre otherwise. By contrast, a dotted line indicates a precautionary edge which seafarers are *recommended* not to cross. A **route** may be created for all or specific ship-types

The **fairway/route width** is the total width of the fairway/route from edge to edge. This width can be determined using channel design guidelines from **PIANC**, which consider vessel traffic density, ship size and hydrodynamics.

Recommendations from the **UK NOREL Committee** based on **PIANC** guidelines suggest a space of at least *2L* per ship, where *L* is 98.5% of LoA (the length-overall) of the largest ship operating in an area. Based on research conducted by **MARIN** (Maritime Research Institute Netherlands) and the **PIANC** guidelines, Dutch authorities recommend the fairway to be at least *4L* if less than 4,400 vessels sail through, *6L* if between 4,400 and 18,000 ships sail through, or *8L* if more than 18,000 ships sail through; in the Dutch guidelines *L* is taken such that 98.5 per cent of the ships are no larger than the standard ship.

Safety Distance Total distance from edge of vessel fairway to an offshore installation, implemented to ensure navigational safety. May vary along the length of a shipping route. It is fixed, based on the width of **safety margin** (if one exists), **reservation area** (if one exists) and **safety zone.**

PIANC refer to this distance as a 'Buffer Zone'. Using the PIANC guidelines, the **UK NOREL Committee** recommends this total distance to be at least 2 NM.



Traffic Separation Scheme (TSS) A routeing measure which can be implemented by a coastal state to ensure safety of navigation. Requires submission to IMO for implementation based on the **GPSR [General Provisions on Ships' Routeing]**. A TSS may be implemented within an existing **route**; creating a stand-alone TSS will automatically create a new **route**.

A **TSS** may consist of several **Traffic Lanes**, which are always separated by a **Traffic Separation Zone.** On nautical charts, arrows indicate the direction of traffic flow in a Traffic Lane. Designed to ensure that vessels on opposite courses (head-on) cross port-to-port in accordance with COLREGS. As with **routes**, solid and dotted lines respectively mark the mandatory and precautionary edges of **Traffic Lanes**.

The width of **Traffic Lanes** depends on the **fairway/route width** as well as availability of sea-space. This influences the number of vessels which can pass side-by-side (i.e. overtaking encounters), and mariners consider the width of **Traffic Lanes** when performing overtaking manoeuvres. Coastal states may impose overtaking or speed limitations in narrow **Traffic Lanes**. Mariners should be given due notice of such measures.

A **TSS** is simply a measure to manage the traffic flow. A **route**, by contrast can also be marked for other purposes: for instance, use by specific vessels (e.g. deep water route, or routes for ships carrying dangerous cargo) using *other* routeing measures.

Safety Margin An area reserved for ship manoeuvres, particularly in case of emergencies to ensure navigational safety. Not implemented by all countries in marine spatial plans. May be determined qualitatively (e.g. based on stakeholder perceptions) or quantitatively (e.g. based on ship manoeuvring characteristics, and static and dynamic vessel properties).

NL quantify it using **IMO ship manoeuvring standards (MSC.137(76))** & ship size (*6L** for port & starboard turns, where *L* is 98.5% of LoA of the largest ship operating in an area). It is currently implemented in NL's spatial plans; other countries (e.g. UK) may *optionally* implement on a case-by-case basis. Implementation requires submission to IMO as a proposed routeing measure in line with **GPSR guidelines**. The safety margin can also be designated as a no-go zone for ships *not* in emergency situations on a recommended or mandatory basis at discretion of coastal state.

Reservation Area An area reserved for future use by either shipping or offshore installations. Gives planners the flexibility to widen the **fairway/route**, **safety margin** or **OREI zone** in light of future developments. Not implemented by all countries in marine spatial plans.

OREI Zone An area reserved for future use by offshore installations. Selected based on a variety of parameters including static and dynamic environmental conditions such as weather data and bathymetry, socio-technicalities such as existing marine users, distance to port, perceptions of local communities, grid connections, etc., and environmental factors such as avian migration routes, marine species, etc.

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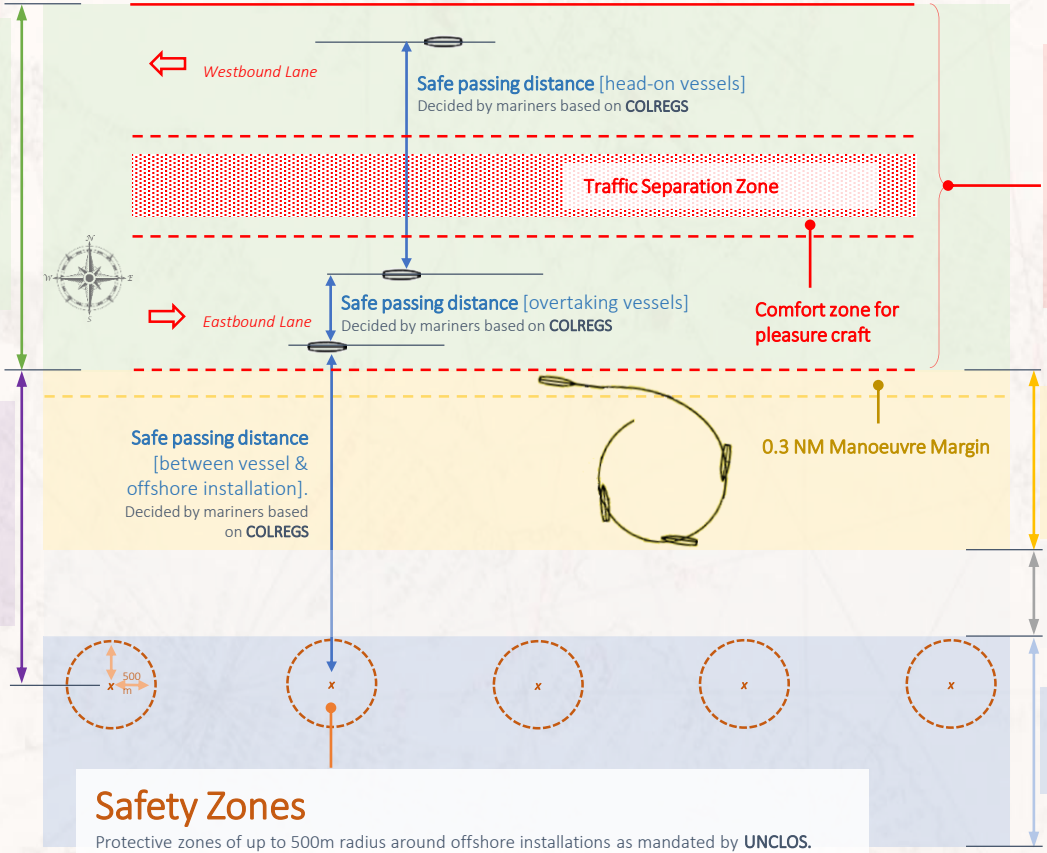

Traffic Separation Scheme

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Safety Margin

An area reserved for ship manoeuvres, particularly in case of emergencies to ensure navigational safety

Reservation Area

An area reserved for future use by either shipping or OREIs

OREI Zone

An area reserved for future use by offshore installations

Safety Zones

Protective zones of up to 500m radius around offshore installations as mandated by **UNCLOS.**

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