"Offshore Renewable Energy & the Mariner"

Seminar held on Monday 10th May on HQS "Wellington"

Contribution by Captain Colin Brown, Offshore Renewables Navigation Risk Consultant.

Summary :

Colin Brown illustrated the Renewable Energy Zone areas of less than 50 metres depth off England and Wales. This is, at present, the maximum depth in which fixed wind turbines – rather than floating structures – are likely to be installed. However, the maximum potential is considerably reduced by various physical constraints, and these upheld by the legal requirements of FEPA, the Electricity Act and the Coast Protection Act.

Developers had, from early 2000, requested guidance in assessing the navigational impact of offshore wind farms (OWF) proposed for UK sites. This was promulgated via the Maritime & Coastguard Agency (MCA) in January 2001, then expanded and published in 2004 as MGN 275 "*Proposed UK Offshore Renewable Energy Installations (OREIs) – Guidance on Navigational Safety Issues".*

Immediately the first UK offshore wind farm was completed, trials were carried out in and around the site to assess possible effects on marine radar, communications and positioning systems. Of these, the only significant effects were found to be on ship borne and shore-based radar, the turbines returning strong responses. Search and rescue trials using RNLI lifeboats and Sea King helicopters from RAF Valley were also initiated, and followed up in 2008 using HM Coastguard's new Agusta Westland AW 139 aircraft.

In 2005 DTI, in co-operation with DfT and MCA, published the "*Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms",* based on IMO Formal Safety Assessment (FSA) methods and used by developers in producing consent application submissions.

As further OWF developments were completed, more radar effects were being reported by Masters and Pilots. In 2006 the British Wind Energy Association (BWEA) commissioned a study in the Thames in which the radar displays of 56 different type vessels passing the Kentish Flats development were recorded. Reflections from ships' structures and fittings, in conjunction with the large radar cross section of the turbines, were found to be a major, but not sole, contributor to the observed effects.

In the light of these findings and the introduction of other types of offshore renewable energy installation (OREI), MGN 275 was updated to include more advice on standards & procedures for search & rescue, counter pollution and salvage, and published in August 2008 as MGN 371 *"OREIs – Guidance on UK Navigational Practice, Safety & Emergency Response Issues".* This now included an advisory template on the distances of wind farm boundaries, in specific circumstances, from shipping routes.

Also published in that year was MGN 372, "*Guidance to Mariners Operating in the Vicinity of UK OREIs".* This describes the various OREI types, potential situations in which mariners might find themselves and how to address these.

The work of related stakeholder groups such as NOREL (Nautical and Offshore Renewable Energy Liaison) and FLOWW (Fishing Liaison with Offshore Wind & Wet renewables) was explained, together with the inputs to the UK Safety of Navigation (UKSON) committee.

Risk assessment and its mitigation is an ongoing process, supported by all stakeholders.

Colin Brown