Offshore Renewable Energy – Emergency Response (SAR)
This presentation will discuss:

- UK requirements for Offshore Renewable Energy Installations (OREI)
- What SAR issues are presented by OREIs?
- Emergency Response Co-operation Plans
- Emergency Response Forum(s)
- Likely SAR scenarios and issues
- Helicopter SAR issues
- Surface Vessel SAR issues
What are the likely SAR issues?

• OREIs as a cause of additional SAR events
• OREIs as an obstacle to SAR activity
• OREIs as a benefit to SAR activities
• OREIs as a benefit to offshore surveillance and communications
• UK OREIs are like any other installation in the maritime environment
UK MCA requirements

• Navigational Safety and SAR requirements – MGN 371 and 372 and MCA website.

• Emergency Response Cooperation Plan – to be in place for construction and operation (and decommissioning) phases.
ERCoP

• Based on good practice developed by the IMO for passenger vessels (SARCoP).

• To ensure that MRCC and Developer/Operator have relevant information about each other;

• can communicate quickly and easily to coordinate an expeditious and effective response.
Emergency Response Forum

Offshore Renewable Energy Emergency Forum (OREEF)

- Act as a focal point for discussions on emergency preparedness
- Act as custodians of industry guidance on emergency preparedness
- To collect and disseminate lessons identified from significant incidents
- To liaise with stakeholders in similar industries e.g. oil and gas, to ensure a common approach to emergency preparedness and response
What are OREIs?
Accident(s) during Construction Operations

- Most dangerous phase
- Rapid alerting and response is important
- ERCOP requires updated information about vessels working on site – daily basis
Accident to Personnel working on Wind Turbines

• In field Rescue Teams
• SAR helicopters and Rescue boats limitations
• Agreed emergency procedures – ERCOP
Third Party Incidents

- SAR incidents will occur within and outside of OREIs
- SAR services need to plan to respond
- OREI operators need to plan to assist (SOLAS and humanitarian obligations)
- OREIs need to be designed to enable SAR operations to take place as safely as possible
- Searches may be restricted (helicopters having to operate above 700 feet? Search and locate only?)
Large Vessel Collision

- Ships may have to pass close by
- A ship will collide with an OREI – drifting or under power
- Active surveillance (radar, AIS) can provide early warning and intervention opportunities
- Towing capable vessels may help to protect ‘asset’
Sightseeing and Leisure Craft

Close to shore, sightseers, inshore day trip boats, low flying aircraft and adventurous activities are an issue.
Location, size, layout, shape, traffic (type, congestion, frequency)
Shipping and small craft routes

Prevailing wind direction

Restricted sea space limits vessels manoeuvring options and ‘time to impact’ for drifting vessels

Safer Lives, Safer Ships, Cleaner Seas
A lot obstacles!

London Array – ca. 300 turbines

Approximately 1,000 metres x 700 Metres apart

10 x 11 NM in area

No barrier to small vessels

Safer Lives, Safer Ships, Cleaner Seas
Further Offshore

• Shore based rescue will take longer to arrive – or may not be able to assist

• In field, self-help capability may need to be improved

• Helipads and refuelling capabilities will be beneficial

• More reliance on passing vessels?

• Offshore communications
Helicopter Operations – Identification of WTG
Height - 500ft

Above sea level....

Requirement...above highest point of WTG

Safer Lives, Safer Ships, Cleaner Seas
Winching
• Winching is achievable
• Captains discretion at the time
• Turbine shutdown and orientation procedures required
Winch areas / platforms are highly desirable.

Photo courtesy of Bonus turbines, Denmark
Weather conditions may restrict or prevent SAR helicopter operations – alternative plans and options should be available
Number of turbines and their proximity will matter to helicopter crews!
Night Helicopter Operations

- Helicopter night operations may be curtailed or restricted or prevented

- OREIs may have to be marked and lit to assist night helicopter operations
Radar identification and discrimination between WTG
30 turbines at 7 Nautical miles
30 turbines at 1.4 NM – some discrimination between individual WTG
Thermal Imaging
Fig 21: Thermal image of personnel on platform

Personnel on platform

Person being evacuated from turbine

(Courtesy of C Flight)
Surface rescue operations are not considered to be difficult – except in rough seas.

Operations in poor visibility will require care (navigation safety)
Rescuing by boat from a turbine may be dangerous unless the boat has a mooring or engagement system.

Turbine ID numbers required to enable passing vessels and/or rescue units to locate themselves visually.
Surface Vessel Radar

Radar images from a small (30 turbine) wind farm.

There may be propagation and reflection issues in bigger windfarms.
Summary

• Treat OREIs as offshore installations
• Design emergency response cooperation processes and procedures
• Work together with industry – emergency forum
• Test and practice – exercises and training
• Industry has responsibilities – self help
• Industry can assist SAR
• Use good practice and lessons from other nations experiences