

### HSEQ IS A KEY ASPECT OF O&M WITH TWO MAIN OFFSHORE WIND INDUSTRY FOCUSES – COMPLIANCE & MAINTENANCE AND EMERGENCY RESPONSE.

The first aims to prevent potential incidents and damage by keeping turbines in tip-top condition. Should the worst happen, the goal of the second is to put fully-trained rescue teams with proven trauma experience on site quickly.

Staff and stakeholders well-being is paramount. However, there are also sound business efficiency reasons - plus strong regulator drivers – for effective HSEQ.

#### OPERATIONS – MORE CHALLENGING

During construction, meeting all these objectives is relatively easy to do. Budgets are large, activity levels high with many skilled personnel, vessels, plus equipment on site.

However, the operational phase is very different and poses problems for many operators. Profitability is a priority. There are fewer skilled workers to call on. Budgets don't stretch to dedicated hospital vessels. Meanwhile, equipment begins to show signs of age, wear and tear.

Many farms face both risks and limited resources. Without innovative solutions they are vulnerable.

#### REGULATIONS AND DRILLS

The statutory HSE framework goes a long way towards defining what should be provided in the field.

Regular emergency and evacuation drills are mandatory in the oil & gas industry. Wind sector regulations take a different form. While the legal definition of offshore installations does not cover offshore wind farms and the offshore safety case regime (OSCR) and PFEER (prevention of fire and explosion emergency response) regulations do not apply, the Health & Safety at Work Act, MHSWR (Management of H&S at Work Regulations) and CDM (Construction Design and Management) do.

Full statutory details are online. However, the measures make it incumbent on employers to put appropriate procedures in place to prevent serious and imminent dangers and to make competent arrangements for evacuation. Places of safety are required. In addition work cannot resume until dangers are removed. Heli-operations are included.

#### DURING CONSTRUCTION

CDM applies in the construction phase. For offshore renewable projects, this means providing emergency procedures and arrangements. Information and training must also be given.

Again, preparations for foreseeable emergencies should include evacuation procedures. Working equipment is covered by the arrangements, as are the physical and chemical properties of substances and material on site. Merchant Shipping legislation also applies.

As a result, written emergency arrangements must be in place and tested through drills and other approved procedures. This needs to be followed through to operations.

#### LEADERSHIP – ALL CHANGE

Meeting these stringent requirements with finite resource is part of GMS's O&M strategy. A frequent question is who is responsible and qualified to make this happen?

During production, emergency response responsibility may fall on a single technician who has been on a GWO course that includes basic rescue at height and first aid training. Clearly, this is inadequate. However, the cost of a dedicated 'ambulance' boat and specialised emergency response teams is expensive.

To meet this challenge, Green Marine Solutions (GMS) has developed ground-breaking 24/7, 365 days-per-year integrated O&M service model. No substitute for experience

This is delivered by multi-disciplined O&M teams trained as all-round operators. Crucially, they also double up instantly to form highly-proficient search and rescue crews already present in field.

Because training is very different from reality, GMS team members are typically ex-forces engineers or emergency services personnel recruited for their professional training and experience in dealing with high stress emergency situations.

Meanwhile they can also ensure that essential safety and evacuation drill training is carried out regularly.

#### IMPROVING RECORD

The G9 Offshore Wind Health and Safety Association notes that marine and vessel operations, lifting operations and working at heights are the three key activity areas where urgent action is needed to reduce H&S incident severity and numbers. This is a prime focus.

Multi-disciplined teams in field can ensure full offshore compliance for essential life-saving, fire fighting and safety equipment. They also begin to strategically manage-out and minimise high-occurrence incidents that blot the industry's H&S record.

#### SMALL IS IMPORTANT

By providing a scheduled, documented and fully-certified round of key checks and services, GMS O&M teams ensure that numerous small factors which together make for a safe working environment are combined and covered properly.

A minor example might be untested and unfit fire extinguishers. These create a non-compliance. Extinguishers have to be maintained and inspected periodically, which is awkward - or is it? They can in fact be tested on site by competent teams as part of combined work scopes.

#### TURBINE TOP TO WATERLINE

Guaranteed davit performance is equally important. LOLER regulations and factors as mundane as keeping chains rust-free in water-tight lockers are vital when equipment must work properly in danger and in drills. CCTV systems must also function properly.

Boat landing point safety and fall arrest systems are critical. Without scheduled O&M servicing, access for other professionals is easily compromised. Substantial knock-on costs may follow.

There are wider human health and industrial safety issues too. The effects of guano are easily over-looked and under-estimated. Bird droppings can carry bacteria and fungi causing infections. The uric acid produced with a 3.0 to 4.5 pH value damages protective coatings and increases corrosion rates. Heli-deck net mesh rots. Aircraft wheels and human feet can slip. GMS controls these deposits – plus algae and marine growth where steelwork is exposed to the sea.

#### TOP-TO-TOE TURBINE BUNDLE

Proven on C-Power's Thornton Bank project, GMS now offers an ultra-efficient, one-stop-shop bundled top-to-toe turbine package of O&M services and all HSEQ certification. It is carried out in a single visit by a single vessel for one lump sum with no downtime weather costs.

#### SKILLED TEAMS + IT = DELIVERY

Co-ordination is clearly important too. For teams to move efficiently from site-to-site and prioritise-tasks, GMS has developed the ROAM system. Real-time Operational Asset Management, as its name suggest, produces, gathers and uses real-time 'live' data. It is currently unique and allows hour-by-hour re-scheduling as working conditions change.

ROAM brings two major advantages. Firstly, an immediate real-time track is kept on the position and status of men, machinery and vessels. This makes proactive O&M services possible far out at sea.

Secondly, ROAM keeps an accurate rolling log of all personnel and equipment certification, plus documentation requirements – with RAG (Red, Amber, Green) warnings automatically issued in advance.

Nothing is left to chance.

Green Marine Solutions



# HSEQ CHALLENGES IN THE O&M PHASE