

OFFSHORE WINDFARM DEVELOPMENT

1. HYDROGRAPHIC SURVEYS



Hydrographic survey is essential for most marine engineering tasks, not least for dredging activities - the backbone of DEME's product portfolio. Accurate positioning is of paramount importance. Similarly, the placing of cables for wind turbines must be undertaken with maximum accuracy and

efficiency. The DEME Group has developed advanced equipment to deal with this task. Silt Hydro Survey, the Survey Department of the DEME Group, operates several hydrographic survey vessels and an advanced data management system.

3. FOUNDATIONS



When constructing the foundations for offshore wind turbines, there are several solutions. Concrete caisson foundations can be used; these rely on gravity to maintain turbine alignment. However, they are costly and very heavy. Increasingly, other solutions such

as suction caissons and/or steel solutions (mono-piles) are favoured. The latter consists of a steel pile 3-6 metres in diameter, which is driven 10 to 30 metres into the ground. The mono pile offers a double advantage: no seabed preparation is necessary and it is easily protected using cathodic systems. DEME subsidiary Hydro Soil Services (HSS) deploys a jack-up pontoon to drive mono piles into the seabed with maximum precision.

In bedrock, HSS also offers a complete vertical drilling package.

2. OFFSHORE SOIL INVESTIGATION

Marine engineering and construction demands specialised geological and geotechnical investigation. Hydro Soil Services (HSS), a member of the DEME Group, has extensive in-house expertise in a variety of non-destructive testing, sampling and survey techniques. They include CPT and SPT tests, core drilling in soils and rocks, Ménard-pressuremeter tests, offshore vibro-coring and bottom sampling. HSS survey teams provide

crucial information on subsea structures using sub-bottom profiling techniques, while bathymetric sonars locate wrecks, pipelines and other obstacles. HSS has applied offshore soil investigation techniques worldwide, operating six self-elevating platforms for offshore exploration. A modular approach to equipment outfit ensures rapid mobilisation.



4. CABLE-LAYING AND ELECTRICAL CONNECTIONS

The next stage is to install seabed cabling. Trench dredging is required for this purpose. Tideway - an international offshore contractor and a DEME subsidiary - has a wealth of expertise in this area. Its extensive fleet includes trailing, cutter and other types of dredgers, winch pontoons, self-elevating platforms, heavy lift vessels, drill rigs, survey craft and stone-dumping vessels. Tideway's exceptional track record in offshore projects includes operations for British Gas, Shell, Enagaz, Statoil

and the Petroleum Authority of Thailand. A thorough approach includes: a study of the surrounding conditions, including a topographic survey; inspections above and below water; a bathymetric survey and compilation of data covering conditions such as tides, currents and soil characteristics. DEME also offers specialised services to co-ordinate the necessary connections to the network.

