

Trifloater

Floating wind turbine

The Trifloater is a special spread moored semi-submersible which carries a 5 MW wind turbine in an offshore environment like the North Sea.

Monopile fixed foundations for offshore wind turbines are well known in water depths up to 25 m. For deeper waters up to 30-35 m very large monopiles and tripod foundations are being considered. With increasing water depth, the cost for a fixed foundation increase sharply. The Trifloater can compete with fixed foundations in water depth deeper than approx 40 m.

The main dimensions of the present design have been optimized for a 5 MW wind turbine in 50 m water depth of the Central North Sea.

The total angle of roll and pitch (static + dynamic) is less than 10 deg both in operational and in survival conditions. The accelerations of the unit are acceptable for a normal design of the tower and the various bearings.

It might be advantageous to build the wind turbine and semi-submersible floater at different locations at great distance from the wind park. The mating of the wind turbine and the floater can be done in a harbour or other sheltered place. The tow out and offshore hook-up only requires relatively small boats. Although the unit will be designed for low maintenance, it is easily possible to bring the unit inshore for major repair, if required.

For a large offshore floating wind farm in accordance with this concept the production cost is estimated at 0.06 to 0.07 EURO/kWhr.

The Trifloater design is a GustoMSC development incorporated in a study with ECN, TNO, Delft University of Technology, Marin and Lagerwey the Wind Master.

Data presented in this product sheet is for information only and subject to change without notice.



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