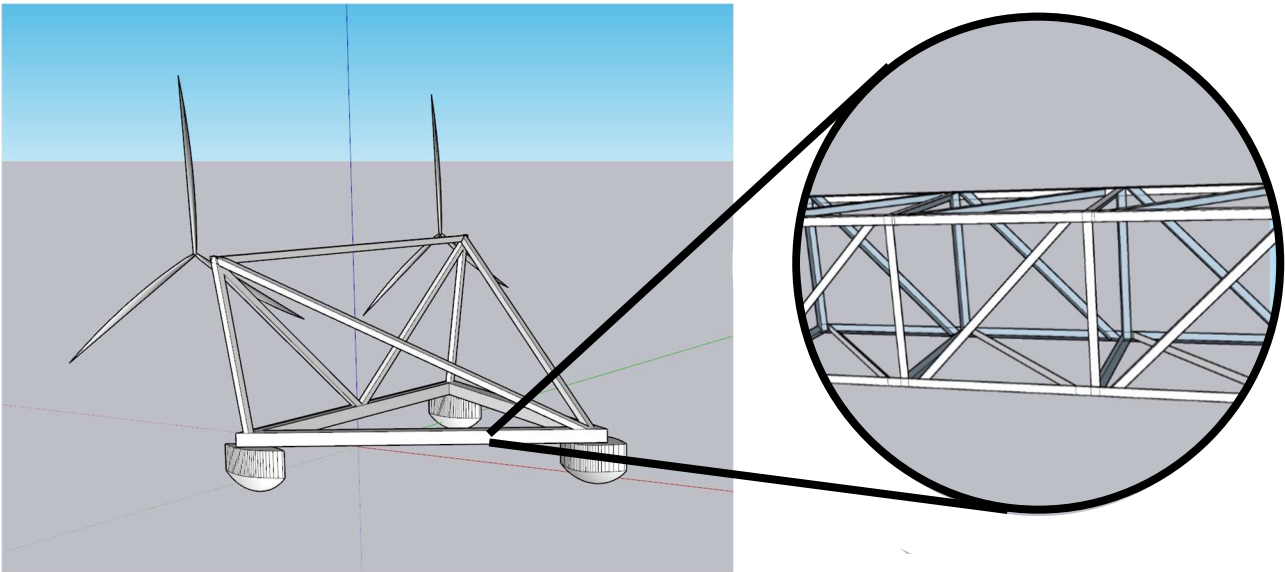


MinT® - A LIGHTWEIGHT FLOATING WIND TURBINE PLATFORM

MinT® (min-tee) is a floating wind turbine platform of a radical new design, which seeks to minimise draught (symbol T, in naval architecture). At first sight, this has the disadvantage of increasing the turbine motions in waves. However, calculations show that the hub accelerations are still below $0.2g$, so only modest strengthening of the turbine blades is required, and the blades are only a few percent of the total system cost.



The benefits in the rest of the structure are very great. The bracing between the floats is clear of the waves and so avoids wave loads. The floats are shaped so that the wave loads on them put no bending into the bracing - all the bracing members can therefore be light lattice structures, like a crane boom. They can be built from pultruded GRP angle sections, which are as strong as mild steel sections of the same size, but are half the cost and a quarter of the weight. The floats are of GRP sandwich construction, like a yacht hull.

The total structural weight of the 16 MW twin-turbine design shown is approximately 500 tonnes, excluding the turbines. This is far below the weight of existing floating wind turbines, which are based on semi-submersible steel drilling rigs, and typically weigh over 3,000 tonnes for a 16 MW unit.

The rest of the design is conventional, with a weathervaning turret mooring on the bow float. There are thrusters on the stern floats for directional stability and optimum heading control. The turret is disconnectable, to allow the unit to be towed to a sheltered location for maintenance - the draught is only 5m, so many locations are suitable, e.g. Dundee harbour. A deep-water harbour is not required, with resulting cost savings over existing designs.

The construction does not require a shipyard. The components are brought in on barges, and bolted together. The whole structure folds flat like a deck-chair, so no large cranes are required.

All these design features are protected by UK patent applications Nos 2300235.5 and 2301458.2.