

Quotes from the 33 page Expert Report

“There is strong evidence to show that the marine energies sector has been relatively poor at identifying and focussing resources on innovations with the strongest potential” This quote from the report is part of why Andrew Mill, Chairman of EMEC, the largest tidal test facility in the world, asked these experts to write a report on the Jupiter technology. He saw that Jupiter Hydro was the only tidal technology which is doing what the wind industry is just now doing after 40 years, running standard high speed synchronous generators in conjunction with a high efficient hydraulic drive system. He saw that, along with all the other innovations mentioned in the following quotes, the Jupiter technology was in fact **“disruptive”** when compared with the rest of the technologies in the tidal industry. These quotes are:

“Compared with bottom fixed devices, there is growing recognition that moored, buoyant platforms offer potential advantages in power level, cost of station-keeping and ease of deployment and maintenance. Jupiter enjoys these advantages.”

"The rotor enjoys the advantage of good efficiency across a broad range of tip speed ratios (TSRs). The TSRs are relatively low, about a third of horizontal axis tidal turbines. For similar power levels, Catapult estimates that torques are roughly 50% higher as a result."

"The power-take-off (PTO) concept, based on multiple, switched, hydraulic, motor generators operating at fixed speed is novel and could confer efficiency, cost and other benefits compared with the conventional approach of having a single, mechanically coupled (including gearbox), variable speed generator with power electronics. Modular switching of multiple, fixed speed machines could have cost and reliability advantages and would also enable simple and cost-effective electrical collection architectures to be adopted in tidal arrays, this being a major challenge for many turbine designs."

"Development of the PTO and control systems has yet to commence but, at this stage, the possibilities are attractive." (This now has been totally developed by Eaton utilizing only one synchronous generator).

"The system is conceived around practicality and the TAP has no conceptual-level concerns."

"TAP does not consider survivability to be a major issue."

"The delta configuration with longitudinal nacelle seems structurally efficient and economical."

"There is no reason to believe reliability is likely to be an issue."

"There is a good narrative to suggest that the system could have a low Capex and Opex."

The unit shown is our 1.5 MW buoyantly submerged turbine. We are quite convinced that the deployed cost of this unit is less than \$1.7M US/MW which makes it very profitable at current rates being paid in the UK. The current technologies being deployed in Scotland, France and Canada are, at the very least, 3 times as expensive as this and therefore, unprofitable!!

