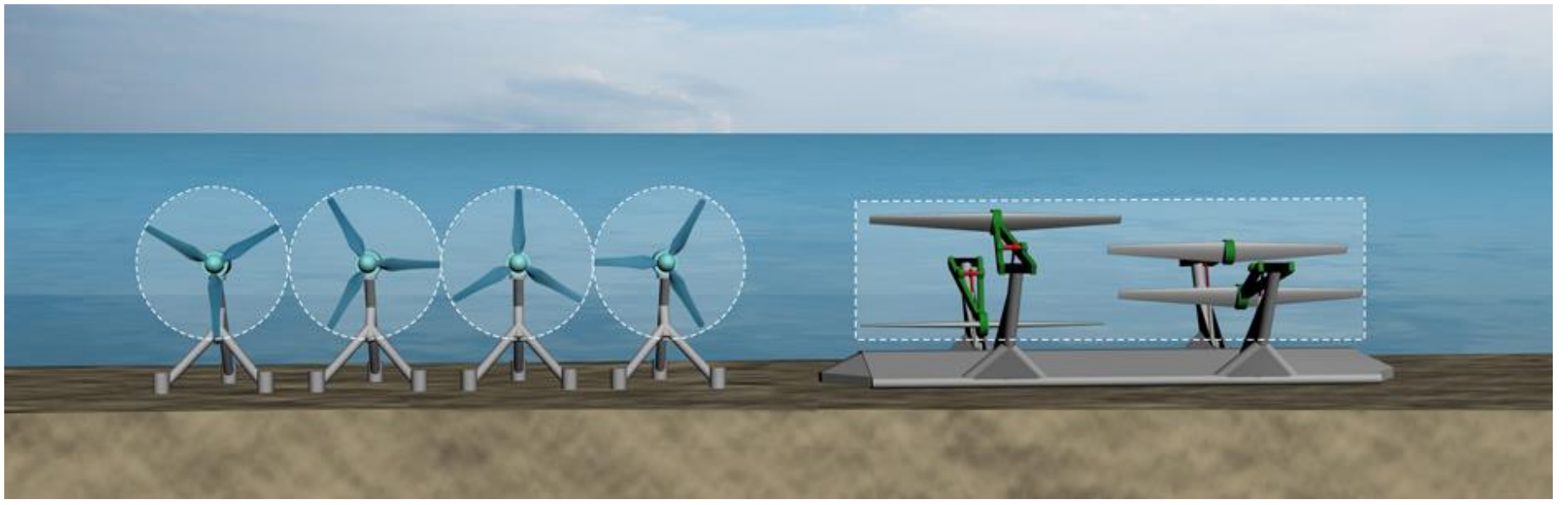
REMO

online remote condition monitoring of tidal generators



Tidal stream power is a very environmentally attractive renewable energy source whose exploitation is being retarded by operation and maintenance problems which cause very low availability times, as poor as 25%. The REMO project goal is to provide an enabling technology for tidal stream energy, by reducing the projected life cycle maintenance costs of tidal stream energy by 50% and the generator downtime to a level comparable with wind turbines.

BENEFITS OF TIDAL POWER

- Most of the necessary superstructure is below the sea surface, thus environmentally unobtrusive.
- The superstructure can be suitably caged, being harmless to all forms of marine life and ships.
- It involves negligible carbon emissions or other pollutants.
- The energy density stored in a tidal current is 800 times that in a normal wind. Hence tidal stream structures can be made much smaller than wind turbine structures.
- Neighbouring turbines in tidal stream farms can be placed closer together than wind turbines.
- Tidal stream generators produce predictable variations in power over a 12-hour cycle.

TECHNICAL OBJECTIVE

- To develop a remote continuous condition monitoring system based on a suite of vibration sensors to continuously assess the structural health of the drive train from real time analysis.

PROJECT GOALS

- Growth of electrical power produced by tidal stream generators to commercial levels.
- Availability level of tidal stream generators exceeding 96%.
- All replacements and maintenance made during schedule downtime, thus eliminating all forced unplanned shut downs.

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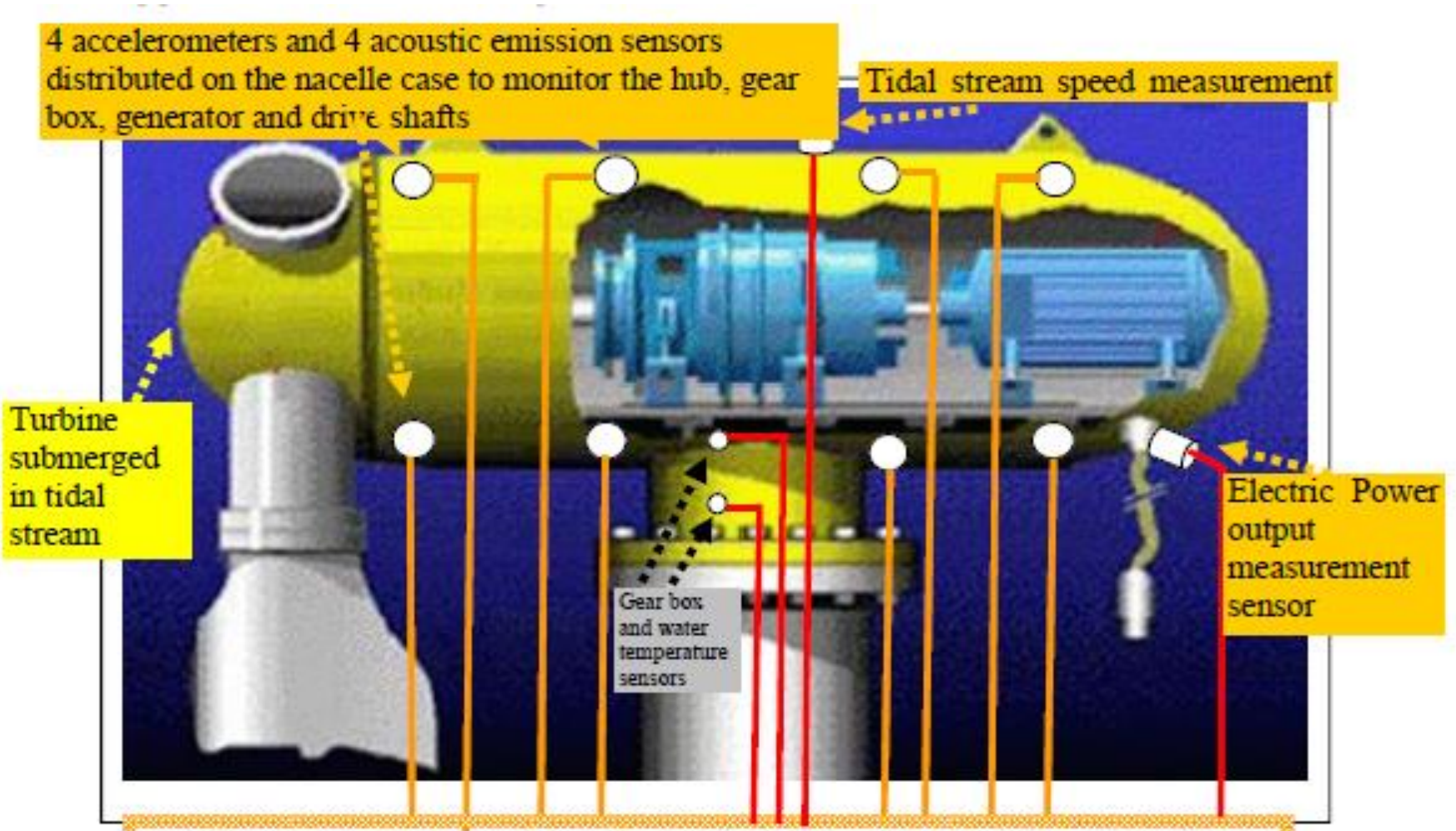

REMO SOLUTION PROPOSED

- Increase the availability time of tidal stream generators to 96%, approximately 350 days per year which is comparable with wind turbines.
- By detecting all components with failing health sufficiently early, the REMO system ensures that the maintenance savings could be as high as 50%.
- The continuous structural health monitoring can also be used to assess component performances and help to redesign them for longer life and lower costs.

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