REMO
Online Remote Condition Monitoring of Tidal Stream Generators

**Tidal Stream Power**

- Environmentally unobtrusive.
- Completely harmless to all forms of marine life and ship navigation
- It involves negligible carbon emissions or other pollutants
- The Accessible Tidal Stream power Resource is Huge.
- The energy density stored in tidal power is 800 times than a normal wind for a given speed of current/wind.
- The cost of construction and cabling cost is lower.
- Predictable variation in power over a 12 hour cycle

**Solution**

The REMO project is based upon monitoring of structural vibrations throughout the entire frequency spectrum generated by the rotating components and so will combine a suite of accelerometer sensors for the low frequency regime and acoustic emission sensors for the high frequency regime. By doing so it will provide:

1. Reduce the life cycle maintenance costs of tidal stream energy by 50%
2. Reduce the Generator Downtime to a level comparable with wind turbines.

After doing so, the technology cost will be competing with the current existing technologies such as wind turbines.

**Problem**

- The main Problem with Tidal Stream Generators is the expected costs of lifetime maintenance in marine environments. The theoretical estimated value of €203,000 and €47,250 have been reported for difficult and easy sites respectively; opposing ~ €30,000 MW/year for typical wind turbine

**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.

**Fig. 2 Mock up design for testing REMO system**

**Fig. 3: Tidal Generator Mock up developed for laboratory trials**

**Fig. 4: Mock up in a water tank performing test on the REMO system**

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**Members of the consortium:**

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**Project Partners:** WLB Ltd – Cyprus, Degima - Spain, CoServices – Belgium, Stirling-Dynamics Ltd – United Kingdom, Brunel University – United Kingdom, Engitec Limited – Cyprus, REMO

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