Windswept & Interesting tethered airborne wind turbine generating electricity (17 December 2016)
Windswept & Interesting tethered airborne wind turbine (30 August 2017)
Windswept and Interesting Ltd (W&I) design, test and publish novel Open Source Hardware AWES. The company primarily focuses on developments which exploit the operational benefits of Kite Networks. Our AWES Kite Network concepts are simple to make and operate. Our autonomous Kite Network prototypes dispel the myth that an AWES necessitates a control system.

The W&I “Daisy” concept flies rings of power kites, line networked, at a wide radius around a lifting kite tether. The power kites are set to expand their rings while rotating. The wide separation of tense ring and kite tethers allows reliable torsion transmission from multiple kites simultaneously. Our tensile torsion transmission method tests reveal the surprising applicability of ring connected rope ladders in AWES. Torsion was dismissed in early AWES computation as only single line systems were considered. Our simulations of large rotating kite networks “OM Kites” suggest that completely soft (kite and line only) torsion transmission can be very scalable. With less line drag per kite, Kite Networks can also be very efficient.

W&I will present models of the enhanced safety inherent in Kite Network designs. Line networks avoid many breakaway failure modes. A line lattice Lifting Kite Network maintains good nodal tether spacing in turbulent wind. Lift Kite Networks enable dense packing of Daisy Kite Network stacks which increases AWES ground use efficiency [1].

W&I marketed a minimally viable AWES. Our small rotary kite network prototypes have met many small power needs. Arrayed unit AWES designs allowed scaled production from small premises. W&I runs most tests inside an Aerodrome Traffic Zone (ATZ), < 30 m AGL and < 2 kg without conflicting CAP393 Air Navigation Order restrictions. The light-weight system is so compact, I will be demonstrating it throughout this summer on a flying tour of festivals including nearby AWEC 2017 Freiburg.

W&I intends to incorporate standard AWES active control systems as our models scale. Small kite network experiments have revealed huge opportunities and potential for AWES.

References: