

Kite Power for Developing Countries

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Abstract

Delft University of Technology is developing a wind energy system which uses the traction power of a tethered flexible wing. The 20 kW technology demonstrator reached the key milestone of automatic operation in spring 2012, making it suitable for commercial development. In the past year the feasibility of technology implementation in less developed countries, especially in rural areas, has been assessed.

Preliminary research with the focus of identifying the optimal location and business model suggested developing countries as the ideal starting point for several reasons. The Airborne Wind Energy system *KitePower* overcomes many of the main barriers and challenges that are persistent in rural areas. This was confirmed during a visit to the countries Senegal, Tanzania in Kenya. Within seven weeks, various important stakeholders such as relevant ministries, NGOs and companies working in the field of renewable energy have been met.



First of all, the majority of the people do not have reliable access to affordable electricity if at all a connection to the national grid exists. Secondly, the proximity to the equator results in darkness in the early evening, making solar-only solutions expensive due to the required costly energy storage. Depending on the region, wind speeds at ground level can be rather low; often throughout the entire year. This makes AWE systems more applicable than conventional wind turbines. Another advantage of *KitePower* is the low amount of material and the high mobility of the system which allows for deployment in remote areas with poor infrastructure.

After the first phase of this explorative mission, the focus lays on the planning and realization of a pilot project in one of the countries. Reaching this mid-term goal will yield many opportunities to attract investors for commercialization attempts in the future.

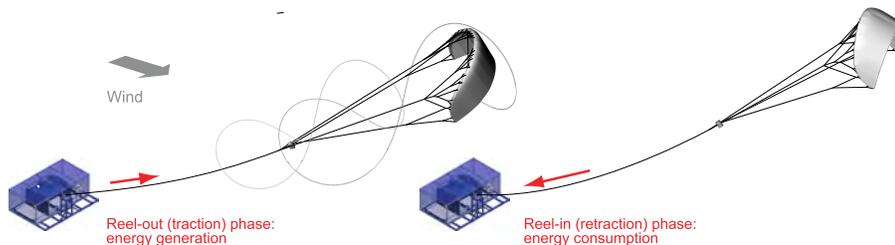


Figure 1: Pumping concept of the kite power system (kitepower.eu, 2013)

Keywords: kite-power, airborne wind energy, pilot project, developing countries, commercialization

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