

International conferences

L. Fagiano, M. Milanese, V. Razza, I. Gerlero "Off-shore High-Altitude Wind Energy Using Controlled Airfoils", *European Wind Energy Conference (EWEC)*, Warsaw, Poland, 2010.

This paper investigates the offshore application of an innovative high-altitude wind energy technology. The idea is to exploit the automatic flight of tethered airfoils (e.g. power kites) to extract energy from wind flows blowing between 200 and 800 meters above the sea. The key points of such a technology are described and the related operational parameters are optimized in order to maximize the generated power while satisfying constraints on the maximal loads exerted on the offshore support structure. The obtained results indicate that offshore high-altitude wind energy could bring forth significant advantages both for new installations and for the reuse of decommissioned existing oil and gas platforms. Moreover, an estimate of the capacity factor achievable with the described technology is computed, showing that offshore high-altitude wind energy has the potential to generate yearly more than twice the energy of an offshore wind tower of the same rated power.