

UNMANNED POWER AIRSHIP FOR AIRBORNE WIND ENERGY GENERATION AND GROUND DISTRIBUTION

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In this work we present the first results for the preliminary design of an unmanned power airship (UPA) to carry out a given mission of airborne wind energy generation and ground distribution. The proposed approach pursues the maximization of the cost effectiveness of the mission with design variables involving structures, aerodynamics and trajectory.

We consider an untethered airship basically consisting of two vertical-axis wind turbines, disposed between two torus shaped envelopes enclosing a lighter than air fluid. The energy generated while airborne is distributed to a respective energy conversion system installed at at least one stationary location within a given region, and a remanding amount is used to fly the airship.

The first results point to the viability of the proposed concept.



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