

Airborne Wind Energy: an overview

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Abstract—In the last decade, several research groups and companies around the world have been developing a new class of wind generators, aimed at harnessing the energy of winds blowing at high elevation above the ground. This kind of technology is usually referred to as Airborne Wind Energy (AWE) or High-Altitude Wind Energy. All of the proposed solutions exploit the high-speed flight of tethered wings, or aircrafts, and their operation heavily relies on automatic control. This paper provides a tutorial on the fundamental concepts of AWE and on the different technologies that are being investigated, with particular emphasis on control-related aspects, highlighting the accomplished results and the issues that still need to be solved.