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Land and Space used

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To estimate the return of investment (ROI) of an Airborne Wind Energy System (AWES), an analysis of its land and space used regarding produced energy must be realized.

Land used

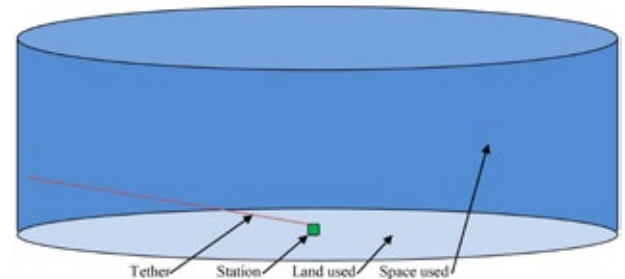
In both conventional and airborne wind energy land used can be divided into the whole area usually determining power (in MW)/land (in km²) ratio for a farm of machines, and the area occupied by stations where AWE takes an advantage. But concerning the whole area of land and due to safety requirements, a zone empty of inhabitants is necessary. With cross-wind AWES, this zone is for each unity a disk where the radius is at least the length of tether, that due to all possible changes in wind directions.

Space used

An important third dimension is added, preventing any air traffic in the worked space.

Conclusion

Both land and space used are huge, so an implementation offshore or in deserts is required, so AWES should be studied for a complete maximization of swept area into the space used. So some ratios can be implemented: swept area/whole land used, swept area/land used by stations, swept area/space used, that for each unity, but above all for a complete farm of unities or a complex system.



Note: The correct shape should be a dome, but the simpler, cylindrical shape, is better locatable by the users in the aviation.