

# Lightweight superconducting generators for the next generation of floating offshore wind turbines

Markus Bauer(bauer@theva.com)  
THEVA Dünnschichttechnik GmbH

## Abstract

In the EU funded EcoSwing project the world's first large-size superconducting low-cost and lightweight multi megawatt wind turbine generator was designed, built and tested. A decrease of diameter from 5.4 m to 4 m and corresponding weight reduction was achieved due to the high magnetic fields generated by the superconducting coils in the rotor. This generator paves the way to implementing this disrupting technology into the real market. It demonstrates its technical maturity. In a design study it was also shown that this technology is capable of reducing the weight of > 10 MW generators by more than 50% making it an ideal technology for floating offshore wind turbines. A brief overview on the design and test results of the 3 MW Ecoswing generator will be given as well as the projections for + 10 MW superconducting generators.

**Keywords:** *FoWT, floating offshore wind turbines, superconductor*

## References

[ 1 ] <https://ecoswing.eu/project>

## Biography

Dr. Markus Bauer responsible for business development at the company THEVA Dünnschichttechnik in Germany, a leading supplier for high temperature superconducting (HTS) wires in Germany. He was responsible for the development of the superconductors and coils for the EcoSwing Generator. Additionally, he is also active in the national and international standardization committee for superconductors.