

# Project 7: Load and cost scaling laws for large scale wind turbines

## Student Project Proposal

### Background

The faster and faster development time of modern wind turbines requires faster and more accurate methods for estimating the loads and cost of next wind turbine upgrade. Further the size of wind turbines just seems to be bigger and bigger, but are they really cost optimal, as discussed in an article in Ingeniøren [1].

### Scope

In this project it is proposed to establish new scaling laws for loads and cost based on historical data and the trends dictated by nature. Further for estimating the project uncertainty, it is proposed to establish an uncertainty quantity for the estimated load and costs.

The method establish in this project may be implemented in our in house scaling tool if successful and used to demonstrate the optimal wind turbine design.

### Keywords

*Aero-elastic modelling, cost benefit analysis, scaling law, wind turbine design, wind turbine cost, load analysis.*

[1]: <https://ing.dk/blog/bliver-vindmoellerne-ved-med-at-vokse-del-192076>

