

Renewable Energy Engineering

Extended exercise 2.3

Estimation of the power production of a wind turbine

Using the set of 1 hour mean wind data used and the power curves of the 600 kW (50m diameter), 1.3 MW (55m diameter), MW and 2 MW (80m diameter) wind turbines estimate the annual energy produced by each wind turbine.

First move the wind speed data to the correct hub height of each turbine using the 1/7th power law.

Data and Resources to support the Exercise

Data and resources for extended exercise

- Data: Exercise 2.1 data.xlsx and Turbine Power Data.xlsx
- Explanation of data: Example 2.3 Explanation of Data.ppt
- Power curves of 3 wind turbines given in: Data on 3 wind turbines included in the “Turbine Power Data.xlsx” excel sheet.
- Example solution: Exercise 2.3 Example solution.ppt
- MATLAB file to give example solution