

## An Empirical Model of Power Curve of a Wind Turbine

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### Abstract:

The power curve of a wind turbine grows exponentially as a function of wind-velocity if the measured wind-velocity varies between the cut-in velocity and the rated velocity. In this study, we propose an empirical, two-parameter explicit model of the power curve for a wind turbine. The model generalizes different turbine power curves and provides an easy estimate to compare various turbine characteristics. The energy analysis of the wind turbine is done using the (proposed) functional relationship and demonstrates how the capacity factor of a wind turbine varies with these empirical factors.

Link: <http://link.springer.com/article/10.1007/s12667-013-0101-5>