

An Indian-Australian research partnership

Small Wind Turbine Technology

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Research Academy theme/s

Clean Energy

The problem

This project will address a class of wind turbines with a power output of less than 100 kW. These turbines are considerably smaller than the larger wind turbines which deliver power ranging from a few hundred kW to a few MWs. These smaller sub-100 kW turbines are easier to manufacture, transport and install. They can also be used at more locations compared to their larger counterparts.

Unlike large wind turbines, however, smaller turbines may encounter more turbulence, gust loads and rapidly changing wind directions. The potential erratic supply of mechanical power from the turbines is also a problem which needs to be addressed. While significant research is available on large wind turbines, the study of smaller wind turbines is fragmented.

Project aims

Multi-disciplinary optimisation (MDO) will be used to develop a prototype of an efficient small wind turbine within a systems integration approach. This will involve studies in aerodynamics, advanced composite structures, control and power generation.

Expected outcomes

The successful completion of this work will lead to the design of an optimised small-scale wind turbine which may have significant commercial potential.