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Abstract
In order to meet the governmental development trend of the pure green energy and establish the school characteristic of the public facility demonstration system, the Southern Taiwan University of Technology installs a small wind power system in 2002. The main purpose for this study is to define the electricity transfer efficiency of the wind power generator. The monitoring software design for the system was written by using the LabVIEW. Then use the record data from monitoring the strategy locations in the circuit system, to calculate the system electricity generator efficiency. In addition, to estimate load demand, we will compare the inverter (DC/AC) with commutator (EZ-WIRE) in performance of their transform loses.

The elevation angle ψ of the wind turbine can help to decelerate the rotor of the generator in typhoon day. Moreover in order to research the relation between the elevation angle of the wind turbine and the aerodynamic flow field around the blades, a digital particle image velocimetry (DPIV) system has been developed to measure instantaneous and ensemble-averaged flow fields around one two-dimensional blade. The flow phenomenon also utilized CFD software-FLUENT to carry out the numerical results for verifying the experimental data. It disclose that the vortex reaction in the downstream of the blade will be the main role for causing the elevation of the wind turbine.
Advisory Committee Herchang Ay - advisor

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