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TORQUE RIPPLE IN A VERTICAL AXIS WIND TURBINE

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ABSTRACT

Torque ripple is a name given to time variations in torque which are propagated through the drive train of wind energy conversion systems. This paper covers an analytical and experimental investigation of torque ripple in a Darrieus vertical axis wind turbine. An analytical model of the turbine is described and numerical results from a solution to the equations of this model are compared to experimental results obtained from the existing DOE/Sandia 17 meter vertical axis wind turbine. Discussions on the sources of torque ripple, theoretical and experimental correlation, and means of suppressing its magnitude are included.

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