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**GUY CABLE DESIGN AND DAMPING FOR VERTICAL
AXIS WIND TURBINES**

Thomas G. Carne

Sandia National Laboratories; Albuquerque, NM 87185

ABSTRACT

Guy cables are frequently used to support vertical axis wind turbines since guying the turbine reduces some of the structural requirements on the tower. The guys must be designed to provide both the required strength and the required stiffness at the top of the turbine. The axial load which the guys apply to the tower, bearings, and foundations is an undesirable consequence of using guys to support the turbine. Limiting the axial load so that it does not significantly affect the cost of the turbine is an important objective of the cable design. The lateral vibration of the cables is another feature of the cable design which needs to be considered. These aspects of the cable design are discussed in this paper, and a technique for damping cable vibrations is mathematically analyzed and demonstrated with experimental data.

Prepared by

Sandia National Laboratories

Albuquerque, New Mexico 87185 and Livermore, California 94550

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