SANDIA REPORT

SLA-74-0154 UC-261 Unlimited Release Printed March 1977

BLADE SHAPE FOR TROPOSKIEN TYPE OF VERTICAL-AXIS WIND TURBINE

B. F. Blackwell, G. E. Reis Sandia National Laboratories; Albuquerque, NM 87185

ABSTRACT

The equations derived to define a troposkien (the shape a completely flexible cable assumes when it is spun at a constant angular velocity about a vertical axis to which its two ends are attached) are described. The implications of the solutions on the design of a vertical-axis wind turbine are discussed for cases where gravity is neglected.

Prepared by Sandia National Laboratories Albuquerque, New Mexico 87185 and Livermore, California 94550 for the United States Department of Energy Under Contract DE-AC04-94AL85000