SANDIA REPORT
SAND77-1063 UC-261
Unlimited Release
Printed December 1977

FREE-AIR PERFORMANCE TESTS OF A 5-METRE-DIAMETER DARRIEUS TURBINE

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ABSTRACT

A 5-metre-diameter vertical-axis wind turbine has been tested at the Sandia Laboratories Wind Turbine Site. The results of these tests and some of the problems associated with free-air testing of wind turbines are presented. The performance data obtained follow the general trend of data obtained in extensive wind tunnel tests of a 2-metre-diameter turbine. However, the power coefficient data are slightly lower than anticipated. The reasons for this discrepancy are explored in the paper, along with comparisons between experimental data and a computerized aerodynamic prediction model.

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