

INTERNATIONAL ENERGY AGENCY
Programme of Research and Development
on Wind Energy Conversion Systems
(IEA R&D WECS)

ANNUAL REPORT 1983

A report by the IEA R&D WECS Executive Committee

January 1984

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FOREWORD

This is the sixth Annual Report of the IEA Programme for Research and Development on Wind Energy Conversion Systems (IEA R&D WECS) reviewing the progress during 1983. It is submitted to the IEA in accordance with the recommendations of the IEA Committee on Research and Development. The report was compiled by the Secretary of the Executive Committee with contributions from the Operating Agents.

E Kinsella
Chairman of the Executive Committee

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EXECUTIVE SUMMARY

The programme of work includes the following Tasks:

- I Environmental and meteorological aspects of WECS
(Completed in 1981)
- II Evaluation of wind models for WECS siting
(Completed in 1982)
- III Integration of wind power into national electricity supply systems
(Phase 1 completed in 1979, Phase 2 in 1982)
- IV Investigation of rotor stressing and smoothness of operation of large-scale WECS
(Completed in 1979)
- V Study of wake effects behind single turbines and in wind turbine parks
(Technical work completed in 1983)
- VI Study of local wind flow at potential WECS hill sites
(To be completed in 1985)
- VII Study of offshore WECS
(To be completed in 1985)

A final workshop of Task V was held in September 1983. A large amount of experimental wind tunnel data and small-scale clusters has been obtained. The data compare well with predictive models. For full validation of the models, large-scale data are needed. An extension of Task V to cover full-scale measurements has therefore been proposed.

Task VI is proceeding according to plan. The main experiment was successfully conducted between September 14 and October 9 at the Askervein site on the Outer Hebrides. Analysis of the results and comparison with predictive models are in progress.