

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

**ANNUAL REPORT 1982**

**A report of the IEA R&D WECS Executive Committee**

**January 1983**

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## FOREWORD

This is the fifth Annual Report of the IEA Programme for Research and Development on Wind Energy Conversion Systems IEA R&D WECS, summarizing the progress during 1982. It is submitted to IEA in accordance with the recommendations of the IEA Committee on Research and Development. The report is prepared by the Secretary of the IEA R&D WECS Executive Committee, Mr B Pershagen.

E Kinsella  
Chairman of the Executive Committee.

## EXECUTIVE SUMMARY

The IEA R&D WECS is a project for co-operative research and development in wind energy, in effect since 1977. The activities include 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 (on-going)
- VI Study of local wind flow at potential WECS hill sites (on-going)

During 1982, a draft Annex for a new Task VII on Study of offshore WECS was approved by the Executive Committee and endorsed by the IEA Working Party on Renewable Energy.

Final reports were prepared for Task II and Task III, Phase 2. Activities in Task V and VI proceeded according to plan. The Dutch part of the joint NL/UK work in Task V was completed, resulting in 11 technical reports on wind tunnel measurements and modelling of wind turbine arrays. The first field experiments in Task VI were carried on the hill site on South Uist in the outer Hebrides.



The expert group on Recommended Practices for Wind Turbine Testing and Evaluation published a report on Power Performance Testing. Other documents are in preparation.

Topical workshops were arranged for investigating the need for further cooperative action, for example in the area of Decentralized use of WECS.

Participating Countries: Austria, Canada, Denmark, Germany, Ireland, Japan, Netherlands, New Zealand, Norway, Sweden, United Kingdom, United States.

Operating Agents: National Research Council of Canada (Task VI), Kernforschungsanlage Jülich GmbH (Task III and IV), Stichting Energionderzoek Centrum Nederland (Task V), National Swedish Board for Energy Source Development (Task I), United States Department of Energy (Task II).