

**2. EDITION**

**EXPERT GROUP STUDY  
ON  
RECOMMENDED PRACTICES  
FOR WIND TURBINE TESTING  
AND EVALUATION**

**1. POWER PERFORMANCE  
TESTING**

**2. EDITION 1990**

*Submitted to the Executive Committee  
of the International Energy Agency Programme  
for  
Research and Development  
on Wind Energy Conversion Systems*

**RECOMMENDED PRACTICES FOR  
WIND TURBINE TESTING**

**1. POWER PERFORMANCE TESTING**

**2. EDITION 1990**

Edited by

Steen Frandsen  
Risø National Laboratory  
DK 4000 Roskilde, Denmark

and

B. Maribo Pedersen  
Technical University of Denmark  
Lundtoftevej 100, Building 404  
DK 2800 Lyngby, Denmark

## **Foreword**

The evaluation of Wind Turbines (WT) must encompass all aspects of a Wind Energy Conversion System (WECS) ranging from: energy production, quality of power, reliability, durability and safety, through to cost effectiveness or economics, noise characteristics, impact on the environment and electromagnetic interference. The development of internationally agreed evaluation procedures for each of these areas is needed to aid the development of the industry while strengthening confidence and preventing chaos in the market.

It is the purpose of the proposed recommendations for wind turbine testing to address the development of internationally agreed test procedures which deal with each of the above noted aspects for characterizing Wind Turbines. The IEA expert committees will pursue this by periodically holding meetings of experts, to define and refine consensus evaluation procedures in each of the following areas:

1. Power Performance
2. Cost of Energy from WECS
3. Fatigue Loads
4. Acoustics
5. Electromagnetic Interference
6. Structural Safety
7. Quality of Power
8. Glossary of Terms

This paper addresses the first of these efforts, and is an update of the first edition, published in 1982.

The expert committee will seek to gain approval of the procedures in each member country through the IEA agreements. The recommendations shall be regularly reviewed and areas in need of further investigation shall be identified.