Preface

ACTION 1 - ASSESSMENT OF THE TECHNICAL AND ECONOMIC POTENTIAL OF WIND ENERGY IN THE EUROPEAN COMMUNITY

Report of the action coordinator : Assessment of the technical/ economic prospects for wind energy in the European countries H. SELZER, ERNO-Raumfahrttechnik, Bremen, Federal Republic of Germany	2
Assessment study of the technical and economic prospects for wind energy in Belgium and Luxembourg C. HIRSCH and D. SIX, Vrije Univesiteit Brussel, Belgium	21
Wind power in Denmark J. FENHANN, Energy Systems Group, Risø, Denmark	26,
Potential of wind energy in the Federal Republic of Germany A. JARASS, L. JARASS and G. OBERMAIR, Institute of Physics, University of Regensburg, Federal Republic of Germany	32
On the wind energy potential of Greece G. BERGELES and N. ATHANASSIADIS, National Technical University of Athens, Greece	38
Assessment of the technical/economic prospects for wind energy in France A. HAENTJENS, SEMA-Energy, France	42
An assessment of the potential for wind energy in Ireland and a review of Irish wind energy development programmes J. BRADY and J. WHITE, Institute for Industrial Research and Standards, Ireland	48
Assessment of the technical and economic prospects for wind energy in Italy E. SESTO, ENEL Centro di Ricerca Elettrica, Italy	52



v

According to the technical (according prophete for wind	
Assessment of the technical/economic prospects for wind energy in the Netherlands A.J. JANSSEN, Netherlands Energy Research Foundation, ECN, The Netherlands	57
Prospects for harnessing wind energy for electricity genera- tion in the United Kingdom B.S. SOAN and M.G. MYTTON, Atkins Planning, United Kingdom	62
ACTION 2 - PREPARATION OF WIND ATLAS FOR THE EUROPEAN	
COMMUNITY	
Report of the action coordinator : Wind atlas for the European Community	
E.L. PETERSEN, Risø National Laboratory, Dermark	70
An interim report from the Irish contractor : Preparation of an EC wind energy atlas L. BURKE, Meteorological Service, Ireland	87
Energie éolienne en France (Wind energy in France) P. DUCHENE-MARULLAZ, CSTB, Etablissement de Nantes, France	91
Climatological analysis of italian data for wind energy applications A. LAVAGNINI, Istituto di Fisica dell'Atmosfera; G. STELLATO, Aeritalia, Settore Energie alternative; G.C. TOSATO, ENI, Ufficio Innovazione e Ricerca scienti- fica, Italy	97
State of the art of research work on wind power potential in Belgium	
L. VAN DER AUWERA and L.M. MALET, Royal Meteorological Institute of Belgium	104
Estimation of wind energy potential in Greece D.P. LALAS, University of Athens, Greece	109
EEC wind energy atlas with respect to the Federal Republic of Germany	
H. SCHMIDT and G. JURKSCH, Deutscher Wetterdienst, Federal Republic of Germany	115
Progress Report : Preparation of database for wind energy atlas - Phase 1 : 'Uncomplicated terrain' R.J. ADAMS, Meteorological Office, United Kingdom	117
Review of wind climate research in the Netherlands J. WIERINGA, Koninklijk Nederlands Meteorologisch Insti- tuut, The Netherlands	123

ACTION 3 - STUDY OF R&D RELATED PROBLEMS OF INTERCONNECTING AEROGENERATORS TO THE GRID

Report of the action coordinator : Grid interface H. SELZER, ERNO-Raumfahrttechnik, Bremen, Federal Republic of Germany	130
Grid interfacing in Belgium W. DECLEYRE, C. HIRSCH and D. VAN AERSCHOT, Vrije Univer-	150
siteit Brussel, Belgium Problems of interconnecting aerogenerators to the grid	146
P. NIELSEN, Research Association of the Danish Supply Undertakings (DEFU), Denmark	151
Integration of wind energy into the grid of the Federal Republic of Germany	
G. OBERMAIR and L. JARASS, University of Regensburg, Federal Republic of Germany	159
Technical, economic and safety aspects of interfacing wind energy conversion systems with the utility grid G.J. VACHTSEVANOS, School of Engineering, Democritus	
University of Thrace, Greece	162
Wind energy - study of grid interface problems in France A. GOUROD, Aerowatt SA, France	167
The interface between aerogenerators and utility grids : considerations relating to the Republic of Ireland	,
H.M. POWER and J.M. FURLONG, University College, Dublin, Ireland	170
Grid interface problems A. BRIZZI and A. INVERNIZZI, Ente Nazionale per l'Energia Elettrica (ENEL), Italy	176 _.
An assessment of the large scale integration of wind power in the Netherlands	100
N. HALBERG, N.V. KEMA, The Netherlands System integration of wind power generation in Great Britain	182
G.E.GARDNER and A. THORPE, Central Electricity Generating Board, United Kingdom	188

ACTION 4 - COLLECTION OF DATA ON THE OPERATION OF EXISTING AEROGENERATORS

Report of the action coordinator : Available data on wind generators

D.F. WARNE, ERA Technology Ltd, United Kingdom

ACTION 5 - INSTRUMENTATION FOR MONITORING OF AEROGENERATORS

Report of the action coordinator : New data on wind generators

D.F. WARNE, ERA Technology Ltd, United Kingdom

202

LIST OF PARTICIPANTS

215