

CONTENTS

Foreword	ix
Chapter 1 - Renewable Energy Sources	
Promoting Renewable Energies and Energy Efficiency through the CDM Funding Options <i>K.D. Patlitzianas, A. Flamos, H. Doukas, A.G. Kagiannas and J. Psarras</i>	1
H ₂ RES, Energy Planning Tool for Increasing the Penetration of Renewable Energy Sources in Island Energy Supply <i>M. Lerer, N. Duic, L.M. Alves and M.G. Carvalho</i>	15
The Shape of Complete Renewable Energy Systems in the World <i>H. Yamamoto and K. Yamaji</i>	31
Experimental Investigation and Modelling of Thermoelectric Generators for Use in Hydrogen Based Energy Systems <i>J. Eriksen, R. Glockner, V.A. Yartys, B.T. Hafsteinsson and T.I. Sigfusson</i>	41
Intelligent Operation Management of Fuel Cells and Micro-Turbines Using Genetic Algorithms and Neural Networks <i>A. M. Azmy and I. Erlich</i>	53
Chapter 2 - Biomass Energy	
Municipal Solid Waste Valorisation as Energy for Isolated Communities <i>G. Tavares, Z. Zsigraiova, V. Semiao and M.G. Carvalho</i>	67
Production of Sustainable Hydrogen Using Thermochemical Gasification of Biomass <i>J. Andries, W. de Jong and H. Spliethoff</i>	77
Characterization of Kenaf Potential in Portugal as an Industrial and Energy Feedstock <i>A.L. Fernando, M.P. Duarte, J. Morais, A. Catroga, G. Serras, B. Mendes and J.F.S. Oliveira</i>	87
Implementation of Anaerobic Digestion Plants in Breweries – Difficulties and Benefits <i>G. Pesta and R. Meyer-Pittroff</i>	95

Application of Biofuels to Compression Ignition Engines <i>A. Kowalewicz</i>	105
Kinetic Study of Froth Flotation for PET-PVC Separation <i>E. Agante, T. Carvalho, F. Duraó, A. Pinto and T. Mariano</i>	117
Use of Biomass in Small Direct Fired Systems <i>C. Syred, W. Fick, N. Syred and A.J. Griffiths</i>	127
Emissions Reduction by Co-Firing Biomass or Waste with Coal in a Pressurized Fluidised Bed Combustion Combined Cycle Power Plant <i>Y. Huang, J.T. McMullan, D. McIlveen-Wright and S. McCahey</i>	153
Production of Biocoal from Cassava Stalk <i>T. Puthikitakawiwong, R. Boonsu and O. Joompha</i>	165
A Comparison of Power Generation from Biomass in a Small CFBC Plant with Biomass Co-fired with Coal in a Large CFBC <i>D.R. McIlveen-Wright, B.C. Williams and J.T. McMullan</i>	171
Characterization of Sweet, Fibre and Biomass Sorghum Potential in Portugal as an Industrial and Energy Feedstock <i>A.L. Fernando, M.P. Duarte, J. Morais and J.F.S. Oliveira</i>	183
Chapter 3 - Solar, Wind, Wave and Geothermal Energy	
Process Dynamics of Fossil Steam Power Plants Induced by the Integration of Transient Solar Heat <i>V. Scherer, K. Roth and M. Eck</i>	193
Directions for Renewable Energy in Canada's Smallest Province <i>A. Trivett</i>	205
Externalities Affecting the Viability of Wind Power for Hydrogen Production <i>N. Kassem</i>	211
Non-Technical Barriers to Large-Scale Wave Energy Utilisation <i>A.J.N.A. Sarmiento, F. Neumann and A. Brito-Melo</i>	225
Solar Power Agriculture: A New Paradigm for Energy Production <i>U. Bardi</i>	235

Possibility Assessment of Wind Energy Utilization in Bosnia and Herzegovina <i>F. Begic, A. Kazagic and N.H. Afgan</i>	249
---	-----

Chapter 4 - Greenhouse Gas Emissions

Earth Tube Ventilation System: A Project Pre-Feasibility Analysis Tool <i>M.A.A. Costa, M.S.A. Oliveira and N. Martins</i>	259
---	-----

Greenhouse Gases Emission Reduction in an Urban Bus Fleet: Application to a Case Study in Funchal, Madeira Island <i>A.M. Simoes, P. Lages, T.L. Farias, C.M. Silva and M.N. Aguas</i>	273
--	-----

Environmental Impact of Hydrogen in Urban Transports <i>K.R. Calhau, G.A. Goncalves and T.L. Farias</i>	285
--	-----

Chapter 5 - Gas Production and Utilization

Devolatilisation of Coal-Biomass Blends and Combustion Behaviour of their Chars <i>P. Ciambelli, V. Palma, P. Russo, S. Vaccaro and V. Vaiano</i>	295
---	-----

Dual Fuel Combustion as a Way of Increasing Sustainability of Power Production <i>D.R. Schneider and Z. Bogdan</i>	311
---	-----

Hydrogen Production by Allothermal Reforming of Ethanol for Fuel Cell Applications. Prototype Development <i>A.J. Marin Neto, E.P. Silva, J.C. Camargo, N.P. Neves Jr. and C.S. Pinto</i>	325
---	-----

Hydrogen Production from Steam or Autothermal Reforming of Ethanol for Low- and High-Temperature Fuel Cell <i>V. Galvita</i>	335
--	-----

Hydrogen Fuel Cell Urban Buses Operating in the City of Porto <i>G.A. Goncalves, T.L. Farias, R. Teixeira and A. Silva</i>	343
---	-----

Chapter 6 - Sustainability Development

Energy in Slovenia and Croatia: Challenges and Possibilities for Sustainability <i>A. Zidansek, R. Blinc, I. Slaus and D. Najdovski</i>	353
--	-----

Sustainability Assessment as a Basis for the Decision Making in Selection of Energy System <i>F. Begic and N.H. Afgan</i>	363
---	-----