RENEWABLE ENERGY RESOURCES AND TECHNOLOGY DEVELOPMENT IN SOUTHERN AFRICA

Edited by

ANTON A EBERHARD AND ANTHONY T WILLIAMS

ÉLAN PRESS Cape Town 1988

CONTENTS

Introduction			
1.	The potential for renewable energy technologies in South Africa A A Eberhard	9	
Solar			
2.	The solar resources of South Africa A Mühlenbruch-Tegen	27	
Solar water heating			
3.	The solar water heating market in South Africa G Stassen	35	
4.	State of the art in solar water heater development in South Africa W N Cawood	47	
5.	Results of an integral solar water heater research/demonstration project J A Basson	61	
Passive solar & energy efficient building design			
6.	The design of economical energy-efficient buildings W A Birrer	79	
7.	Computer thermal prediction with the CR–Method I L Steenkamp	91	
8.	The Energy Design Technique: EDT J W Hand	109	
9.	Review of the use of microcomputer-based design tools for passive solar design of low-cost housing in South Africa M O'Donovan	125	

		page
Solar 10.	Electric The potential for solar ponds in Southern Africa G R Scholtz & A A Eberhard	145
Wind 11.	energy The wind energy resource in South Africa R D Diab	157
Hvdi	o-energy	
12.	Hydro-electric potential in Southern Africa H Olivier	183
13.	Hydro-electric development in Transkei D Stephenson	197
14.	Wave energy potential off Southern Africa G de F Retief & F PJ Müller	211
Bio-e	energy	
15.	The potential for the production of energy from biomass in South Africa A T Williams & A A Eberhard	227
16.	The history and experience of woodlot development for fuelwood production in Southern Africa M V Gandar	247
17.	Agroforestry M J Underwood	261
18.	The design of fuel-efficient woodstoves appropriate for underdeveloped areas of South Africa S Baldwin	. 277
19.	Report on continued longterm testing of woodgas powered engines K G Johansson	289