

RENEWABLE ENERGY

**Renewables:
World's Best Energy Option**

Extended Abstracts



World Renewable Energy Congress VII

29 June - 5 July 2002

Cologne, Germany

Edited by A.A.M. Sayigh



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PREFACE

I am delighted to present the Extended Abstracts volume and Proceedings CD-ROM of the Seventh World Renewable Energy Congress (WREC VII).

More than 1100 abstracts were received and from these the members of the technical committees selected 938 for presentation (plenary, oral and poster) at the Congress. All papers were fully refereed and original. The ten technical committees were comprised of members all of whom are recognized experts in their fields, to whom I am indebted for their tireless work on behalf of the Congress.

To date over 700 papers have been received covering the following issues: photovoltaic technology (PV); solar materials technology (SM); wind energy (WE); fuel cell systems (FC); solar thermal applications (ST); biomass for energy and materials (BM); low energy architecture (LEA); policy issues and related topics (PI); gender and poverty reduction (EGP); and other major topics (OMT). And no doubt this seventh WREC congress will be the largest we have held so far.

I should also like to thank the host Chairman in Cologne and his excellent team for their hard work and enthusiasm over the last twenty months, without whom this event would not be taking place.

My thanks to The International Steering Committee's 670 members from across the world, who play a major role within the World Renewable Energy Council. A special word of thanks goes to all the sponsors without whose support some of the participants would not have been able to attend.

WREN and the World Renewable Energy Congress and Council have been running for the last twelve years and its missions and goals are fully expressed in this publication. It is important to stress at this stage that the World Renewable Energy Congress and its various committees have become a benchmark in renewable energy where representatives from all sectors of society, whether politicians or scientists, can get together, networking and benefitting from each other's research and information exchange.

Ali Sayigh
Chairman of the Congress
Director General of WREN
24 May, 2002

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Congress Aims

1. Ensuring renewable energy takes its proper place in the sustainable supply and use of energy for greatest benefit of all, taking due account of research requirements, energy efficiency, conservation, and cost criteria.
2. Enabling participants from developed and developing countries to meet and exchange knowledge and experience.
3. Assisting and promoting the real local, regional and global environmental benefits of renewable energy.
4. Promoting the innovation, diffusion and efficient application of economic renewable energy technologies.
5. Enhancing supply security and reducing important dependence on fossil fuels.
6. Widening energy availability, especially in developing countries and rural areas.
7. Promoting business opportunities for renewable energy projects and their successful implementation.
8. Ensuring the financing of, and institutional support for, economic renewable energy projects.
9. Encouraging improved information and education on renewable energy.
10. Involving young people in information and education on renewable energy with a parallel, closely integrated programme.
11. Providing a technical exhibition where manufacturers and others can display their products and services.
12. Strengthen and expand the effectiveness of The World Renewable Energy Network (WREN) in all the above objectives.
13. Providing a forum within which participants can network.

Congress Chairman, Host Chairman, Technical Committee

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