

Final Call for Abstract

# World Renewable Energy Congress IX and Exhibition

19–25 August 2006

Florence – Italy



WREC



Host Organization  
University of Florence

Organised by  
World Renewable Energy Congress Brighton, UK

## Mission Statement

At no time in modern history has energy played a more crucial role in the development and well being of nations than at present. The source and nature of energy, the security of supply and the equity of distribution, the environmental impact of its supply and utilization, are all crucial matters to be addressed by suppliers, consumers, governments, industry, academia, and financial institutions.

The World Renewable Energy Congress (WREC), a major recognised forum for networking between these sectors, addresses these issues through regular meetings and exhibitions, bringing together representatives of all those involved in the supply, distribution, consumption and development of energy sources which are benign, sustainable, accessible and economically viable. WREC enables policy makers, researchers, manufacturers, economists, financiers, sociologists, environmentalists and others to present their views in Plenary and Technical Sessions and to participate in discussions, both formal and informal, thus facilitating the transfer of knowledge between nations, institutions, disciplines and individuals. WREC applauds the recent ratification of the Kyoto Protocol by Russia. The recent World Renewable Energy Congress VIII in Denver, USA attended by more than a thousand participants, signalled the increasing importance of renewable energy, but much effort is still required to make it a major energy supplier.

## Congress Aims

- 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.
- Enabling participants from developed and developing countries to meet to exchange knowledge and experience.

- Assisting and promoting: local, regional and global environmental benefits of renewable energy.
- Promoting the innovation, diffusion and efficient economical renewable energy technologies application
- Enhancing energy supply and security.
- Promoting business opportunities for renewable energy throughout the world.
- Ensuring the financing of, and institutional support for economic renewable energy projects.
- Encouraging improved information and education on renewable energy.
- Involving young people in information and education on renewable energy through targeted programs.
- Providing a technical exhibition where manufacturers and educational authorities can display their products and services.
- Strengthen and expand the effectiveness of the World Renewable Energy Congress (WREC/WREN) in promoting the above endeavor.
- Providing a forum within which participants can network.

## Dates to Remember

All papers will be subjected to full reviewing process before being accepted.

Accepted papers will be published in the proceeding by Elsevier

### Abstract:

- no more than one page A4: by February 8, 2006.

### Acceptance notification:

- by February 28, 2006.

### Full paper:

- no more than 7 pages, double columns, single spaces, use double spacing after sub-headings or new paragraphs. Figures and tables must be among the text. Full instruction will be sent to authors with accepted abstract.
- *Papers must be received by April 10, 2006.*

- Acceptance notification by May 5, 2006.

A selection of 200-papers will be made by the technical committee to be published in Renewable Energy and Solar Energy Journals.

## Committees

*Host Chairman:* **Prof Marco Sala**

Dept. of Architectural Technology,  
Florence, Italy.

*International Chairman:* **Mr Robert Noun**

NREL, Golden, Denver, USA.

*Congress Chairman:* **Prof Ali Sayigh**

WREC, Brighton, UK.

*Chairman of National Advisory Committee:*

**Prof Federico Butera,**

Politecnico di Milano, Milan, Italy.

*Technical Committee Advisors:*

**Mr Roberto Vigotti**–ENEL , Italy.

**Dr Larry Kazmerski**–NREL, USA

**Prof Richard Perez**–The Univ at Albany, USA

**Prof Dr Yoshihiro Hamakawa**–  
Nogihigashi, Japan

**Dr Osman Benchikh**–UNESCO, Paris,  
France.

**Mr Rainer Hinrichs**–Rahlwes,

F. Ministry for the Environ., Nature  
Conservation & Nuclear Safety, Berlin,  
Germany.

**Mr Inderjit S Anand**, India Power As-  
sociates, New Delhi, India.

**Prof. Zhang Xiao-Ping**, Shanghai  
Institute of Energy, Shanghai, China.

**Dr Faiq Billal**, ISESCO, Rabat, Morocco.

**Dr Mario Cucinella**, MCA Integrated  
DEsign, Bologna, Italy.

*Technical Committee Coordinators:*

**Mr Michal Jefferson.**

**Dr AbuBakr S Bahaj**

**Dr Larry Kazmerski**

*For more information about the Congress &  
Exhibition, contact:*

Prof Ali Sayigh,

PO Box 362, Brighton BN2 1YH, UK.

Tel: 44-1273-625-643 Fax: 44-1273-625-  
768, email: [asayigh@netcomuk.co.uk](mailto:asayigh@netcomuk.co.uk),

web: [www.wrenuk.co.uk](http://www.wrenuk.co.uk)

## Congress Hotel

**Grand Hotel CAVOUR**

Via Del Proconsolo, 3-50122 Firenze

Tel: 00-39-055-266-2701

Fax: 00-39-055-218-955

Email: [info@albergocavour.it](mailto:info@albergocavour.it)

[www.albergocavour.it](http://www.albergocavour.it)

## Exhibition

**Centro Abita, Arch Lucia Cecherini Nelli,**

Tel: 00-39-055-5048394

Fax: 00-39-055-5048394-48

Email: [marco.sala@taed.unifi.it](mailto:marco.sala@taed.unifi.it)

[www.unifi.it/abita/wrenexhibition](http://www.unifi.it/abita/wrenexhibition)

## Additional Sponsors

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**Wind Direct Limited, Bristol, UK**

## Technical Committee and Congress Topics

### Fuel Cells and Hydrogen Technology

- Advances in the science and technology of fuel cells.
- Proven commercialization reports including economic and policy issues.
  1. Dr. Imad Mahawili , USA – Chair
  2. Dr. Ulrich Schmidtchen , Germany
  3. John Roethle, USA
  4. Dr. Kamaruzzaman Sopian, Malaysia
  5. Akita Maruta, Japan
  6. Mr Arno A. Evers, Germany

### Biomass Conversion

- Heat and Electricity Generation
- Energy Crops and Residues
- Liquid Fuels
- Environmental Impacts
- Socio- economics and Case Studies
- Gasification processes
  1. Prof. Ralph E H Sims, New Zealand – Chair
  2. Prof Stefano Brandani, UK – Co Chair
  3. Dr Jim Coomb, UK
  4. Prof Shang-Shyng Yang, Taiwan

5. Prof Ni Weidou, China
6. Prof Pier Ugo Foscolo, Italy
7. Prof. Celio L. Cavalcante, Brazil
8. Prof. Dr Kyriakos Maniatis, IEA, EC, Belgium
9. Prof. Jim Richardson, Canada
10. Dr Julie Domac, Croatia
11. Dr Kingiri Senelwa, Kenya
12. Mr Stephen Schuck, Australia
13. Prof. B. A. Stout, USA

### Energy, Poverty Reduction and Gender

- Gender and Sustainable Energy in Latin America, Sunday Workshop
- Gender and Sustainable Energy in the North
- Gender and Sustainable Energy in Developing Countries
  1. Barbara C. Farhar, Ph.D., NREL, USA - Chair
  2. Marilyn Averill, University of Colorado, USA
  3. Sheila Oparaocha, ENERGIA, The Netherlands
  4. Ms Jeannie Renne, NREL, USA

### Low Energy Architecture

- Thermal Environment (thermal comfort, air quality, ventilation);
- Visual Environment (daylighting, low energy lighting)
- Building Design Case Studies (forms, elements and materials);
- The urban environment (airborne pollution, noise, heat islands etc);
- Building and sustainability (life cycle performance, local renewable energy systems);
- Building refurbishment (integration of renewables).
- Architecture (education, social and psychological issues related to low energy architecture).
- Building Environmental Simulation and Airflow Simulation for Passive Cooling.
- Policy Issues and Regulations for Buildings and Urban Design
- Energy Saving in Earth Care Buildings

- Teaching in Architecture (TIA)
  1. Dr Hazim Awbi, UK – Chair
  2. Mr Joel H. Goodman, USA
  3. Dr Cettina Gallo, Italy
  4. Mr Hugh Lockhart-Ball, UK
  5. Mr Ian Giuliani, UK
  6. Dr Mohammed Imbabi, UK
  7. Mr Martin Liddament, UK
  8. Prof Andrew Miller, UK
  9. Prof Marco Sala, Italy
  10. Mr Nazar Sayigh, UK
  11. Dr Adil Lari, Austria

### Marine Energy Technology

- Devices and Prototypes
- Hydrodynamics
- Climate and Resource
- Studies (economics, public financing, social and environmental issues)
  1. Dr AbuBakr S. Bahaj, UK – Chair
  2. Prof Ian Bryden, UK
  3. Dr Chris Retzler, UK
  4. Prof John Sharp, UK
  5. Dr Teresa Pontes, Portugal

### Photovoltaic Technology

- Solar cell technology
- BOS components
- PV manufacture, testing and certification
- Stand-alone systems
- PV for rural development
- PV in the built environment
- Utility and grid connection issues
- Markets and commercialisation
- Financing schemes
- National Programme
  1. Dr AbuBakr S. Bahaj, UK – Chair
  2. Mr Frederick Treble, UK – Co Chair
  3. Prof Mike Thwaites, UK
  4. Dr Patrick James, UK
  5. Dr Muafaq Al-Jassim, USA

### Solar Materials Topics

- Advanced Glazing Including Low Emission and Solar Gain Control Coatings.
- Spectrally Selective Solar Absorbers.
- Smart Materials, e.g. Electrochromic, Gasochromic, Thermochromic Systems.

- Daylighting, Angle Selective and Redirectional Materials, Shading Systems.
- Antireflection Coatings.
- Optical properties, measurement techniques and reference materials
- Design tools and selection criteria
- Durability and reliability
  1. Prof Michael G Hutchins, UK – Chair
  2. Prof Geoff Smith, Australia
  3. Prof Arne Roos, Sweden
  4. Dr Zorica Crnjak Orel, Slovenia
  5. Dr Charles Anderson, France
  6. Mr. Michael Koehl, Germany

### Solar Thermal Applications

- Collector Technology
- Water Heating
- Thermodynamic Systems/Thermal Electricity
- Thermal and Hybrid Applications
- Thermal Fundamentals
- Rural Applications
  1. Prof. Philip Eames, UK – Chair
  2. Prof Robert Critoph, UK – Co Chair
  3. Dr Dorota Chwieduk, Poland
  4. Prof Dr Ali A Al-Karaghoul, Bahrain
  5. Dr Ahmad Hour, Lebanon
  6. Prof Dr Mohd Yusof Hj Othman, Malaysia
  7. Mr Tony Book, UK
  8. Dr Roger Thorpe, UK
  9. Prof. Panayiotis Yianoulis, Greece
  10. Dr Indra Haraksingh, Trinidad and Tobago
  11. Prof. H.P. Garg, India
  12. Dr Gouri Datta, India

### Sustainable Transport

- Sustainable Transportation and Renewable Energy: Challenges and Prospects.
- Sustainable Transportation and Renewable Energy: The Environmental Dimension.
- Sustainable Transportation and Renewable Energy: The Health Dimension.
- Sustainable Transportation and Renewable Energy: A Key to Climate Change Mitigation.
  1. Dr Ayad Altaai, USA – Chair
  2. Dr Carlos Dora, WMO, Switzerland

3. Prof. Dr Werner Rothengatter, Germany
4. Dr Kuppusamy Thirumalai, USA
5. Prof. Dr Jiang Yulin, China
6. Prof. Dr Yoshitsugu Hayashi, Japan

### Wind Energy Applications

- Technical, Environmental and Resources Issues
- National Programme and Institutional Issues
- Off - shore Wind Power
- Small and Hybrid Wind Systems
  1. Dr Don Swift-Hook, UK - Chair
  2. Dr Peter D Edwards, UK
  3. Dr David Milborrow, UK
  4. Dr David Lindley OBE, UK
  5. Dr Andrew Garrad, UK

### Policy Issues

- Critical Reviews of Renewable Energy Policy – regional and international level
- Sustainable Energy Development – Reviews of Performance, Challenges and Aspirations
- Renewable Energy Policies and Programmes for Social and Industrial Development.
- Raising Awareness for the Age of Renewable Energy.
- Facilitating Renewable Energy Technological Innovation and Diffusion.
- Financing for Renewable Energy Development.
- Renewable Energy Policies and Programmes for the Reduction of Local and Regional Pollution.
- Renewable Energy Policies and Programmes for the Alleviation of Climatic Change.
  1. Mr Michael Jefferson, UK – Chair
  2. Mr Martin Alder, UK
  3. Mr Robert Noun, USA
  4. Prof Madjid Abbaspour, Iran
  5. Prof Piyawat Boom-Long, Thailand
  6. Dr Wang Zhongying, China
  7. Dr Suani Coelho, Brazil

## Some of the Invited Speakers

### Dr Abdulaziz Otheman Altwaijti



Dr Altwaijti is Director General of the Islamic Educational, Scientific and Cultural Organization – ISESCO. He is a Saudi National. Director of ISESCO from 1991 until now and member

of Board of Trustees of Islamic University in Niger, Uganda, Pakistan and Bangladesh. Members of various cultural and Islamic Organizations in Jordan, France, Egypt, Argentine, Sharjah, Iran, and Peru. Author of numerous educational and cultural monographs and research papers as well as numerous articles published in leading magazines. Member of the Council of the 100 leaders, affiliated to the World Economic Forum. He was awarded many prizes for his innovative work in religion, culture and science.

### Alexandros N. Tombazis, Hon. FAIA, Architect



Mr Tombazis has been practising architecture since 1963 when he founded his office based in Athens, Greece, which today employs about 60 persons. He is strongly interested in

bioclimatic and low energy architectural design and has lectured on these subjects worldwide. A monograph on his work was published in 2002 by L'Arca Edizioni.

### Ms Dominique Lallement



Ms Lallement has worked for the World Bank for over 25 years. Currently, she is the Energy Adviser in the Energy and Water Department and Manager of the Energy Sector Management

Assistance Program (ESMAP), which advises on bank energy strategy, in particular on energy-poverty nexus, institutional and capacity building, and multi-sectorial

policy and implementation issues. She is also the coordinator of the Technical Secretariat of the Global Village Energy Partnership (GVEP).

### Dr Wiktor Raldow



Dr Raldow joined the European Commission in 1997. Since 2002, he is the head of the unit for new and renewable energy sources. Wiktor Raldow graduated 1972 in chemical engineering

at the Royal Institute of Technology in Stockholm. He obtained his Ph D at the same school and worked as a post-graduate fellow at the University of Houston, Texas. Later, he was also active as a part time professor of Thermochemical Absorption Processes at the University of Lund. Wiktor Raldow published more than 30 articles and co-authored two books (in Swedish), one on energy storage and the other on a long term vision of the energy systems. Wiktor Raldow worked several years with industrially relevant research at the Swedish National Board for Technical and Industrial Development. During this period he also was the national representative to and the chair of IEA implementing agreement on Hydrogen and Energy Storage.

### Mr Federico Fische



Mr Fische is an economist with over twenty years of experience in both the public and private sectors. He is a project developer, market and sector researcher, and analyst with specialization

in renewable energy, technology transfer, international trade and sustainable development. Since July 2001 he is with the Boston Institute for Developing Economies, an 18 year old consulting firm working in developing countries on macro policy, trade, deregulation, land tenure and sustainable development. Mr. Fische is the

Institute's Acting Director for the Latin American Division and also Associate Director for Sustainable Development.

### Professor Jose Goldemberg



Professor Goldemberg earned his Ph.D. in Physical Science from University de São Paulo of which he is Full Professor and former Rector. He has served as the President of Brazilian As-

sociation for the Advancement of Science, President of the Energy Company of the State of São Paulo (CESP), Secretary of State for the Environment of the State of Sao Paulo, Secretary of State for Science and Technology, Secretary of the Environment and Minister of State of Education of the Federal Government of Brazil. He has authored many technical papers and books on Nuclear Physics, Environment and Energy.

### Dr Siegfried Heier



Dr Heier is head of the Wind Power Engineering Department at Universitaet Kassel, Germany. He has been working in the field of Wind Energy for over 25 years. He is initiator and head of many research projects concerning this field and published over 70 articles about Generator Systems, Control and Grid Integration of Wind Energy Converts etc. He published three books, is chairman and member of many national/international committees.

### John Hallock Jr.



John Hallock was educated at Cornell University and at the State University of New York, College of Environmental Science & Forestry, in Syracuse. He

currently works for New York State (USA) as an Environmental Specialist. John's

education and experience is primarily as an aquatic scientist, but he has recently focussed much attention on oil production forecasting, the coming peak of conventional oil production, and related policy implications. He is the lead author and co-author of published papers on the outlook for conventional oil production, including papers published in 'Nature' and 'Energy'.

### Ms Irene Freudenschuss-Reichl



Ms Freudenschuss-Reichl has been a member of the Austrian Diplomatic Service since 1982. Over the last few years, she has mainly worked in the area of economic and social

development, environment, energy, and development cooperation. She has held numerous international bureau functions. From 1995 to 1998 she was the director of the international department of the Austrian Ministry for the Environment. From 1998 to 2001 she was Austria's Permanent Representative to the UN in Vienna. From 2001 to 2004 she headed the UNIDO Office in New York in the rank of an Assistant Director General. Since 1 January 2005 she is in charge of Austria's development cooperation as Director General in the Ministry for Foreign Affairs.

Irene Freudenschuss-Reichl founded the Global Forum on Sustainable Energy (GFSE) in 1999 and acted as Convenor for the GFSE's five global meetings ([www.gfse.at](http://www.gfse.at)). She has published various articles on global issues in Austrian and international scholarly and mainstream publications as well as a book ('zukunfts-fähig leben – Spiritualität und Praxis der Nachhaltigkeit'. KSOe 2005). She has training and practice in spiritual direction and adult education. Her hobbies include horseback riding, reading and music.

### Dr Lawrence L. Kazmerski



Dr Kazmerski is Director of the *National Center for Photovoltaics* (NCPV) at the National Renewable Energy Laboratory, Golden, Colorado. He was at (Electrical Engineering)

of the University of Maine before coming to SERI (NREL) in 1977. His research at Maine included NSF- and ERDA-funded work in thin-film photovoltaics and the report of the first thin-film copper-indium-diselenide (CIS) solar cell. He was SERI's first staff member in photovoltaics, hired specifically to establish efforts in the characterization of photovoltaic materials and devices; he led NREL efforts in measurements and characterization for more than 20 years. He has held *adjunct professorships* at the University of Colorado, Colorado School of Mines, and the University of Denver. Dr. Kazmerski has published over 300 journal papers in the areas of solar cells, thin films, semiconductor materials and devices, surface and interface analysis, molecular beam epitaxy, semiconductor defects, scanning probe microscopy, nanoscale technology, high-temperature superconductivity, solar and photovoltaics technologies, and solar hydrogen. He has authored or edited four books, and serves on the editorial board of five journals—and he has more than 160 invited presentations at international conferences, workshops, and seminars. He was co-founder and editor of the journal *SOLAR CELLS*, published by Elsevier-Quoia (1979-1991). Kazmerski is Editor-in-Chief of the Elsevier journal, *Renewable and Sustainable Energy Reviews*. He has three R&D 100 Awards. He is active in the IEEE, AVS, MRS, APS, ISES, and ASES. Kazmerski was the recipient of the Peter Mark Memorial Award of the AVS in 1981 and IEEE William R. Cherry Award in 1993. This year, Kazmerski was elected as a member of the *National Academy of Engineering* (NAE).

### Professor Dr Hermann Hofbauer



Professor Hofbauer is full professor at the Vienna University of Technology. He is vice head of the Department of Chemical Engineering, head of the research division for 'Chemical Process

Engineering and Fluidized Bed Technology', and head of the research group of 'Future Energy Technology'. Since 2004 he is also dean for study affairs for Chemical Engineering at the Vienna University of Technology. Prof. Hofbauer has got more than 20 years of experience in thermal biomass utilization and he is coordinator of several European as well as national projects in this field. He is chairman and scientific head of the network of competence for 'Energy from Biomass - RENET-Austria' and also key researcher at the competence centre 'Austrian Bioenergy Centre – Area Gasification'. Since more than 15 years he has been Austrian representative in IEA-BIOENERGY in several tasks (e.g. combustion, gasification) as well in the Executive Committee. Since 1990 he is lecturing 'Fuel Technology', 'Energy Technology', 'Fluidized Bed technology', 'Basic Engineering of Combustion Systems', and 'Thermal Biomass Utilisation' at the Vienna University of Technology. He is author or co-author of a large number of scientific publications.

### Dr Mario Cucinella



Dr Cucinella founded MCA in Paris in 1992 and MCA Integrated Design in Bologna in 1999. The practice's initially had success in international competitions research and industrial

design and has a special interest in climate responsive design and sustainability. Prior to this he worked with the Renzo Piano Building Workshop for five years in Genoa and later in Paris. He is actively involved in education, teaching technology studio



at Ferrara University. He lectures regularly in schools of Architecture around Europe. His work is internationally recognized and he has won many competitions and awards. He was awarded the prestigious 1999 Forderings Prize for Architecture by the Akademie der Künste of Berlin. On the 13th of October the Energy Performance Architecture Award jury awarded First Prize to Mario Cucinella for the attention paid to energy themes throughout his activity as an architect and, in particular, for the projects Ex Casa di Bianco in Cremona, Hines Bergognone 53 in Milan and SIEEB Sino Italian Ecological and Energy Efficient Building in Beijing.

### Professor Max Fordham



Professor Fordham was credited recently by the President of the Royal Institution of British Architects with having almost single handedly raised the status of building services engineers to a high position among the professionals who work on the design and construction of buildings.

The practice Max Fordham LLP was founded in 1966 and now has a staff of almost 150 with offices in London, Cambridge and Edinburgh. New graduates are given a training in inventive engineering design, and the practice is constituted as a co-operative to encourage members to stay in the firm. The success of the practice is evidenced by its reputation and the awards for its work. Over 100 of the practice's projects have received awards for some aspect of the design, often with energy conservation and sustainability cited. The achievements of the practice were recognised with the Queens Award for Enterprise in Sustainable Development in 2004. He is OBE MA FREng FCIBSE FConSE Hon FRIBA, Past President CIBSE and Gold Medal.

### Mr Michael Jefferson



Mr Jefferson is an advisor on energy and environmental issues based in the UK, and Chairman of the Policies Committee of the World Renewable Energy Network/Congresses.

Michael's education included the Universities of Oxford and London (London School of Economics), and in 1973 he was appointed Chief Economist of the Royal Dutch/Shell Group. He spent nearly 20 years with Shell, occupying senior planning and oil supply positions, before going to the World Energy Council as Deputy Secretary-General during most of the 1990s. He is the author or co-author of numerous books and scientific papers on energy and environmental issues. He wrote 'Energy for Tomorrow's World' (World Energy Council, 1993). He was Joint General Editor of 'New Renewable Energy Resources: A Guide to the Future' (1994); Convening Lead Author of the policies chapter of the 'World Energy Assessment' (UNDP 2000) and a co-author of the updated Overview of this Assessment published in 2004. He has written many published papers on climatic change and related international negotiations. He is currently a consultant to various UN, intergovernmental and international organisations.

### Professor Nebojša Nakicenovic



Professor Nakicenovic is Leader of the Transitions to New Technologies Program and Leader of the Greenhouse Gas Initiative Program at the International Institute for Applied

Systems Analysis (IIASA), Professor of Energy Economics at the Vienna University of Technology, Coordinating Lead Author of Millennium Ecosystem Assessment and Coordinating Lead Author of Intergovernmental Panel on Climate Change (IPCC)

Forth Assessment Report of the Working Group III. Prof. Nakicenovic is a Associate Editor of the International Journal on Technological Forecasting and Social Change and Member of the Editorial Board of the International Journal on Climate Policy. Prof. Nakicenovic was the Director, Global Energy Perspectives, WEC, 1993 to 1998, Convening Lead Author of the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), 1993 to 1995, Convening Lead Author of the IPCC Special Report on Emissions Scenarios, 1997 to 2000, Lead Author Third Assessment Report of the IPCC, 1999 to 2001, Convening Lead Author of the World Energy Assessment: Energy and the Challenge of Sustainability, 1999 to 2000, and Guest Professor at the Technical University of Graz, 1993 to 2003.

#### Professor Koen Steemers



Professor Steemers is the Director of the Martin Centre and Professor in Sustainable Design at the Department of Architecture, University of Cambridge.

His research projects address the environmental performance of buildings and cities, with a particular emphasis on the relationship with the user. Recent books include: 'Energy and Environment in Architecture' (2000), 'Daylight Design of Buildings' (2002), 'The Selective Environment' (2002) and 'Environmental Diversity in Architecture' (2004).

#### Professor Stephen Belcher



Professor Belcher of the Department of Meteorology, University of Reading, UK is a consultant to Arup Research Department, associate editor of 'Quarterly Journal of The Royal Meteorological Society' and 'Boundary – Layer Meteorology'. Amongst other publications

he has contributed to 'Climate change and the internal environment of buildings: a designer's guide' and 'Constructing weather data for future climates'.

#### Mr Rainer Hinrichs-Rahlwes



Mr Hinrichs-Rahlwes has been Director General in the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety since November 1998. For the years until

2002 he was mainly in charge of administration and political coordination in the ministry. Based on one of the units he was in charge of he started his work on the national climate protection programme and in the context soon became aware of the important role of renewable energies. After the elections in 2002 the responsibility for renewable energies was shifted from the ministry of economic affairs to the ministry of environment so that a new unit for climate protection and renewable energies had to be established within his responsibilities. He became one of the two co-chairs for International Steering Committee preparing the renewables 2004 in Bonn. After the Bonn conference he engaged in the follow-up process as a co-chair of the interim steering committee for Global Policy Network now called REN21. As a representative of the German Environment Ministry he delivered speeches and presentations at the regional preparatory conferences for the renewables2004 in Brasilia, Bangkok and Berlin, at the World Wind Energy Conferences in Cape Town in 2003 and in Beijing 2004, at the Global Wind power in Chicago 2004, at the European Wind Energy Conference in London 2004, at the World Renewable Energy Congress in Denver in 2004, at the World Geothermal Congress in Antalya/Turkey in 2005 at many other events in Germany and abroad.

### Dr Stanley R. (Stan) Bull



Dr Bull is Associate Director, Science and Technology, National Renewable Energy Laboratory and Vice President, Midwest Research Institute. Stan joined NREL in 1980 and leads NREL's RD&D which emphasizes renewable energy and energy efficiency technologies in support of DOE programs. He has experience in leading energy research and development, managing and developing programs, and planning and evaluating technical programs. Stan has more than 35 years of experience in energy and related applications including renewable energy, energy efficiency, transportation systems, bioenergy, medical systems, and nondestructive testing. Stan has many publications and received several awards.

### Dr Mrs Suani Teixeira Coelho



Dr Coelho obtained her master and Ph D from University of São Paulo. On Mechanisms for the Implementation of Biomass-origin Cogeneration. Deputy Secretary for the Environment of São Paulo State. Head of CENBIO – the National Reference Center on Biomass – Institute of Eletrothecnics and Energy –University of São Paulo (agreement with the Federal Ministry of Science and Technology and other state-owned and NOG institutions. Professor and thesis advisor at the Energy Graduation Program of University of São Paulo. Research subject: Energy Production from Biomass. Coordination of technical, economic, environmental and institutional studies on biomass for energy subjects with Brazilian and foreign institutions, including Federal and State Government.

### Thomas B. Johansson



Mr Johansson studied at the Lund Institute of Technology, Sweden, where he obtained a Ph.D. in Nuclear Physics in 1974. He was appointed Professor of energy systems analysis in 1986. From 1994 till 2001 he was Director of the Energy and Atmosphere Programme in UNDP, where he initiated the use of energy as an instrument for socio-economic development in UNDP work on development cooperation, and developed and launched the World Energy Assessment in cooperation with UNDESA and World Energy Council. In 2001, he became Director of the International Institute for Industrial Environmental Economics (IIIEE), Lund University, Sweden. He was Convening Lead Author of the IPCC Second Assessment Report (Energy Supply Mitigation Options) from 1992 to 1996. He was also a founding member of the Board of the International Energy Initiative from 1992 till present. He has chaired and had memberships of a number of international and multilateral boards.

### Dr Roberto Vigotti



Dr Vigotti presently at Enel head of External Relations in the International Department. He is also director of EnelGreen Power. Chairman IEA Renewable Energy Working Party. He presented many papers and written several reports about Renewable Energy during the last 30 years. He was awarded WREN Pioneering Award in September 2004 at Denver, USA for his work in Renewable Energy.

### Mr Dan Plesch



Mr Plesch has written on energy issues for such papers as the Guardian and the Independent and organised research and policy programmes on Energy

Security, first at the Royal United Services Institute and then at the Foreign Policy Centre. He is helping lead a project for the European Commission on anti-terrorism programmes in the energy and transport sectors. He is a leading commentator on international affairs and is a Research Associate at the Centre of International Studies and Diplomacy at the University of London's School of Oriental and African Studies. In 1986 he founded the British American Security Information Council in Washington DC, which he directed until 2001. His most recent book is *the Beauty Queen's Guide to World Peace*.

### Mr Bernard McNelis



Mr McNelis is a leader in the world renewable energy community. Managing Director and Co-Founder of IT Power with 30 years experience with renewable energy technologies in industry and consulting practice. He has been engaged by most of the United Nations agencies, World Bank, EU and UK Government Departments, and has completed assignments in more than 50 developing countries. He is a Visiting Reader at the Sustainable Energy Research Group, at the University of Southampton. One of founding members of the UK section of the International Solar Energy Society (ISES) in 1974 and served as its Chairman from 1993–1995. He was author of the 30 years history of UK-ISES published at the 50th Anniversary Conference in Orlando in 2005. Director of ISES between 1993 and 1999 and Vice President from 1995 to 97. In 2001 he received the ISES Achievement through Action Award at the Adelaide Congress and, in 2004, UK-ISES presented him with its Special Service Award. He was co-founder of the British Photovoltaic Association (PV-UK), and a Director from 1992–2002, Chairman in 1992, and 1999, and is currently serving a 3rd term as Chairman.

Mr McNelis was Secretary General of the European Photovoltaic Industry Association (EPIA) 1999–2000, Chairman of the 17th European Photovoltaic Conference in Munich in 2001 and Vice Chairman of the 3rd World Conference of Photovoltaic Energy Conversion, held in Osaka in May 2003. In 1998 he initiated, and now leads, the International Energy Agency (IEA), PV for Developing Countries Project.

### David Milborrow



Mr Milborrow is a consultant who has been active in the energy and renewable energy fields for 28 years. Until 1992 he was with the UK's Central Electricity Generating Board but is now independent. He specialises in technical and economic issues, particularly related to wind energy, and has carried out assignments for clients in the UK, Canada, Ireland the United States and elsewhere, in both public and private sectors.'

### Dr David Lindley



Dr Lindley has more than 25 years experience in the renewables and power industry. He was Chairman of Ocean Power Delivery Ltd from 2002 to 2005 and remains a non Executive Director. He is also currently a non executive Director of KP Renewables PLC and a Member of the Advisory Council of SAM Private Equity Sustainability Fund II of Switzerland. He was founder and managing director of National Wind Power Ltd, the UK's leading developer and operator of both onshore and offshore windfarms and now a subsidiary of RWE Innogy plc. He was founder and managing director of Wind Energy Group Ltd, a company jointly owned by Taylor Woodrow, British Aerospace and GEC that designed and manufactured wind turbines and rotor blades and constructed wind farms in

the USA, Italy, Spain and the UK. He has previously held other senior posts in the UK, New Zealand and the USA. He was elected a Fellow of the Royal Academy of Engineering in 1993, a Fellow of the Royal Society of Arts, Manufacture and Commerce in 2001 and was appointed an OBE in 1998 for his services to renewable energy and the wind turbine industries.

He was awarded the Melchett Medal by The Institute of Energy, London in 1990, the Stephenson Medal by The University of Newcastle in 1989 and The James Watt Medal by The Institution of Civil Engineers, London in 1987. He has been a member of several advisory Boards and Government Committees including the UK Government's Renewable Energy Advisory Group, and a Member of the UK Government's Advisory Council for Fuel and Power. He is OBE

### Adriaan van Heiningen



Mr van Heiningen holds the J. Larcom Ober Chair in the Department of Chemical Engineering at the University of Maine, Orono, ME, USA. He obtained a B.Sc. in Chemistry, and an Ir. degree in Chemical Engineering at the State University of Groningen in the Netherlands. He has a Ph.D. degree (1982) in Chemical Engineering from McGill University, Montreal, Canada. His research interests are in fundamental chemical engineering aspects of pulp and paper processes; in particular those of wood pulping, pulp bleaching, and recovery of waste pulping chemicals. His recent interest is the establishment of an 'Integrated Forest Products Refinery' which produces bio-energy and biomaterials besides pulp, paper and wood products.

### Professor Philip C. Eames



Professor of Solar Energy Applications, Professor Eames directs the activities of the Centre for Sustainable Technologies (CST) and is Director of the Built Environment Research

Institute at the University of Ulster which was 5A rated in the RAE 2001. He has led research that has secured major advances in the dynamic simulation of the thermophysics of a very broad range of building facade components (particularly very-low heat loss glazings and building integrated photovoltaics), energy storage systems and solar energy collectors. He has also developed new experimental performance characterisation techniques for building components. His research interests concern energy systems and sustainability, simulation and its limits of application, as well as the underpinning engineering sciences of thermodynamics, fluid flow and heat transfer.

### Professor Martin Green



Professor Green is currently Scientia Professor at the University of New South Wales, Sydney, Australia and Executive Research Director of the University's

world-renowned Photovoltaic Centre of Excellence. He is also a Director of CSG Solar, a company formed specifically to commercialise the University's thin-film, polycrystalline-silicon-on-glass solar cell. His group's contributions to photovoltaics are well known, and include both laboratory and commercial successes. He is the author of six books on solar cells and numerous papers in the area of semiconductors, microelectronics, optoelectronics, and, of course, solar cells.

### Professor Federico Butera



Professor Butera is professor of Environmental Applied Physics at the Politecnico di Milano, and for more than 30 years has been actively concerned in the field of renewable energy and

appropriate use of energy, from the scientific, technical, political and social point of view. He has combined research with design, popularisation with entrepreneurial actions, in a wide international context, including developing countries. His research activity has been mainly focused on solar energy applications, low energy architecture and sustainable urban development. Besides his scientific production, he is also author of books and articles on energy issues for non specialised audiences.

He has been involved in many research tasks of the IEA Implementing Agreement “Energy Conservation in Buildings and Community Systems” and “Solar Heating and Cooling”, as well as in several European projects. As a renewable energy expert and consultant, he carried out several studies for United Nations and World Bank on technology transfer of RES in Developing Countries.

He was director of an Institute (IEREN) of the National Research Council, specialised in the interaction between energy and buildings, president of a local energy utility (AMG) and member of the Scientific committee of ENEA, the Italian agency for energy and environment. Recently he has been involved by the Italian Ministry of Environment in advanced projects regarding sustainable buildings and towns in China. He was awarded “Pioneer for Contributions in renewable Energy” by the World Renewable Energy Network in 1998 and, for his “outstanding service to the utilization and promotion of Renewable Energies and Sustainable Architecture”, by Eurosolar in 2004.

### Professor K. R. Sreenivasan



Professor Sreenivasan received his Ph.D. from the Indian Institute of Science, Bangalore, in 1975; his thesis was awarded the P.S. Narayana Gold Medal as the best in Mechanical Sciences.

After post-doctoral work in Australia and Johns Hopkins University (working, for some time, for both Stanley Corrsin and Les Kovasznay), he joined Yale in 1979. There, he was the Harold W. Cheel Professor of Mechanical Engineering until 2002, holding concurrent appointments in the Departments of Physics, Applied Physics, and Mathematics.

He moved to the University of Maryland in 2002, where he was appointed Distinguished University Professor, Glenn L. Martin Professor of Engineering and Professor of Physics, and served as the Director of the Institute of Physical Science and Technology for a year and a half. He then took up his current position, on leave from Maryland, as the Director of the International Centre for Theoretical Physics in Trieste, Italy, where he also holds the Abdus Salam Honorary Professorship.

One of his Centre’s missions is to support research careers of young and promising physicists and mathematicians in developing nations. His research interests are primarily in fluid dynamics, but they have also touched on a few other areas of physics.

He is a fellow and member of various societies and recipient of various scientific awards in science. Editor of several Journal and has held visiting positions at the Indian Institute of Science, Caltech, Rockefeller University, Institute for Advanced Study at Princeton, and, as the Sir C.V. Raman Professor, at the Indian Academy of Sciences.

# Congress Registration Form

## World Renewable Energy Congress IX and Exhibition

19–25 August 2006, Florence, Italy

### 3 Easy Ways to Register

**By Post:** WREC XI, PO Box 362, Brighton BN2 1YH, U.K. Tel: 44–1273–625–643

**By Fax:** 44–1273–625–768

**By Email:** asayigh@netcomuk.co.uk

**Website:** www.wrenuk.co.uk www.wreckuk.co.uk

*Please complete the form and return it as soon as possible to WREC XI. Submit one form for each delegate – photocopies may be used. Please type or use block letters.*

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**Registration, if payment is made before 10 June, 2006**

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| <input type="checkbox"/> Full Congress Week including Congress Dinner                | EUR 500 |
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**Registration, if payment is made after 10 June, 2006**

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**Reduced fee for one Congress day**

Please indicate day of attendance Mon/Tue/Wed/Thu/Fri EUR 200

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All requests must be accompanied by a deposit, as specified in the table below, plus Euro 15,00 as agency fees.

Hotel category	Single	Double for Single Use	Double
	min/max	min/max	min/max
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3-star	100,00/125,00	120,00/135,00	130,00/150,00
2-star	80,00/95,00	90,00/105,00	100,00/125,00
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Low cost accommodation*	45,00/55,00	60,00/70,00	80,00/95,00

\*Please note that only a limited number of low cost accommodations are available. The indicated rates, in Euro, are valid for the period of the Congress and include one overnight stay, continental breakfast, taxes, V.A.T. Breakfast is not included for one star and low cost accommodation. The deposit must be paid by 15 May, 2006 and the balance will be paid directly to the hotel. The hotel will issue a receipt of payment inclusive of deposit. Single rooms are available in a very limited number and they will be assigned on a first-come first-served basis. If not available, the Organizing Secretariat will assign double rooms for single use.

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no. \_\_\_\_\_ double room/s. I wish to share the room with \_\_\_\_\_

no. \_\_\_\_\_ triple room/s. I wish to share the room with \_\_\_\_\_

I wish to share the room with \_\_\_\_\_

Arrival date  Departure date  No. of Nights

Deposit  per  no. of rooms

Agent fee  15,00

TOTAL RESERVATION DEPOSIT Euro

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Loc. Osmannoro

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Italy

## Some Invited Speakers and Paper Titles

### **Photovoltaic development in Italy**

Dr Francesca Ferrazza, EniTecnologie, Responsabile Scientifico CE-SEA, Nettuno, Italy

### **Mono and Multi Crystalline Silicone**

#### **Future development and progress**

Hurbert A Aulich, PV Crystalox Solar AC, Erfurt, Germany

### **PV Applications in Developing Countries**

Bernard McNelis: Chineham Court, Lutyns Close, Chineham, Basingstoke, UK

### **Urban Energy: The Case for PV in Social Housing**

A. S. Bahaj: Southampton University, School of Civil Engineering & the Environment Sustainable Energy Research Group, Southampton, UK

### **Photovoltaic Use in a Disaster:**

#### **Mitigation verses Response**

William Young, Jr, Florida Solar Energy Centre, Florida, USA

### **Milan & Beijing Cucinella Innovative Energy Saving Buildings**

Mario Cucinella: Mario Cucinella Architects Srl, Bologna, Italy

### **Results and findings from the monitoring of the renewable energy systems on the RES building, Kings Langley, UK**

Bill Watts, Max Fordham LLP, London, UK

### **Environmental Design and Performance of the Landcare Research Headquarters Building, Auckland, New Zealand.**

George Baird: Centre for Building Performance Research, School of Architecture, Victoria University of Wellington, New Zealand.

### **Architectonic studies with building size non-imaging reflectors**

Joel H. Goodman: P.O Box 14, Dodgeville, Wisconsin, USA

### **Full-Scale Evaluation of Energy Use and Emission Reductions of a Dynamic Breathing Building**

Mohammed S Imbabi, Technical Director,

The Environmental Building Partnership Ltd

### **Solar Energy in Urban Environment**

Running Yao: The Martin Centre for Architectural and Urban Studies Department of Architecture, University of Cambridge, Cambridge, UK

### **Energy consumption and indoor climate of various types of low energy architectures in Japan**

Hiroshi Yoshino, Kenichi Hasegawa and Shin-ichi Matsumoto: Department of Architecture and Building Science, Tohoku University, Sendai, Japan

### **Keys to Sustainable Architecture: Adaptability, Robustness and Diversity**

Koen Steemers: Martin Centre, Department of Architecture, University of Cambridge, Cambridge, UK

### **A Letter of advice from a grandpa architect to his grandchild**

Alexandros N. Tombazis, A N Tombazis and Associates Architects Ltd, Athens, Greece

### **Experience of thermal mass in the Brighton Earthship**

Andrew Miller, Building Sustainability, School of the Environment University of Brighton, Brighton, UK

- Mr Gokay Deveci, Scott Sutherland School of Architecture, RGU
- Mr Andrew Peacock, The Energy Academy, Heriot Watt University
- Dr Paul Strachan, Dept of Mechanical Engineering, Strathclyde University
- Mr David Warwick, Buro Happold, Leeds

### **Euronetres: A UNESCO Project for the future sustainable architecture**

Cettino Gallo, Rome, Italy

### **Mainstreaming renewable energy technologies in the built environment – overcoming the obstacles**

John Easton, Parr Architects, Glasgow, Scotland, UK

### **Wind Energy Programme in Italy**

Dr. Luciano Pirazzi, ENEA C.R.Casaccia, Rome, Italy

## **Wind Development and State of the Art of Grid Connected Systems**

Siegfried Heier, Institut für Elektrische Energietechnik, Fachbereich Elektrotechnik [IEE], Universität Gesamthochschule Kassel, Germany

- Mr. Richard Ford: Head of Grid & Technical Affairs British Wind Energy Association, London, UK

## **The Economics of Wind Energy**

David Milborrow: Consultant, LEWES, UK

## **Renewables Aspiration for the United Kingdom**

David Lindley: Chairman Ocean Power Delivery Ltd, London, UK

## **Solar Thermal in Italy: Market, Applications and Research**

Riccardo Battisti: Dept of Mechanical and Aeronautical Engineering, University of Rome 'La Sapienza', Rome, Italy

## **Solar-thermal cycles for large-scale cooling using seawater**

Philip A Davies: School of Engineering and Applied Science, Aston University, Birmingham UK

## **Artificial neural networks and genetic algorithms for the optimization of solar thermal systems**

Soteris Kalogirou: Higher Technical Institute, Nicosia, Cyprus

## **Alleviating Poverty in Rural Bangladesh by the Design of Sustainable Solar Technologies to Facilitate Wealth Generation Opportunities**

Simon N Mclean: School Art, Design & the Built Environment, Nottingham Trent University, Nottingham, UK

## **Integrated Solar Energy System for Heating, Cooling, Natural Ventilation and Hot Water Supply in a Green Office Building**

WANG Ruzhu: Institute of Refrigeration and Cryogenics, Engineering Research Center of MOE China, School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, China

## **Hydrogen and Fuel Cells by Using Renewable Energy Sources**

Salvatore Freni, Istituto di Tecnologie Avanzate per l'Energies 'N. Giondano' Lucia Messina, Italy

- Mark Aramli: V.P. Sales, EMEA, Milan, Italy Representing: Capstone Micro Turbine Corporation
- Charles Meyers: Director of Marketing, Nuvera Fuel Cells, Cambridge, Massachusetts, USA
- Neal Verfuert: President & CEO, Orion Energy Systems, Plymouth, Wisconsin, USA

## **Developing a Renewable Hydrogen Economy: Merits of Different Infrastructural Approaches**

David Joffe: Imperial College, University of London, London, England

## **The Market for Fuel Cells in Europe**

John Lidderdale: Logan Energy, LTD

## **The London Hydrogen Economy**

Zoe Jennings: Manager of the London Hydrogen Partnership, London, England

## **Distributed Generation Facility with Integrated Molten Carbonate Fuel Cell, Combined Heat Power Micro Turbine, Amorphous Silicon Photovoltaic Cells, and Nickel Metal Hydride Battery**

Imad Mahawili: Executive Director, Michigan Alternative and Renewable Energy Center, Grand Valley State University, Muskegon, Michigan, USA

- Mr Akiteru Maruta: Manager, R&D Department, Technova, Inc., Tokyo, Japan

## **Worldwide market opportunities for Hydrogen and Fuel Cells**

Arno A. Evers: · Arno A. Evers FAIR-PR, Starnberg, · Germany

## **Hydrogen Programme in Italy – Strategy for the future**

Raffaele Vellone, ENEA, Rome, Italy

## **Geothermal Energy Clean and Renewable Power from the Earth**

Austo Batini: Enel – International department, Roma , Italy

**Germany's Renewable Energy Policies as Effective Instruments for Combating Climate Change**

Daniel Argyropoulos (Germany)

**Raising Awareness for the Age of Renewable Energy**

Jan Hamrin (USA)

**Renewable Energy Policies and Programmes for Industrial Development**

Wang Zhongying (China)

**Brazilian experience with Biomass: Current policies and lessons learned**

Suani Coelho (Brazil)

**Renewable Energy in Thailand: Prospects and Challenges**

Naksitte Coovattanachai (Thailand)

**Renewable Energy Policy in COMSATS Members**

Tajammul Hussein (Pakistan)

**Renewable Energy Policies and Programmes for Social Development**

Govind Nepal (Nepal)

**Renewable Energy and Energy Efficiency: two ways to achieve sustainable development**

Anca-Diana Barbu (Germany)

**Current Renewable Energy Policies in the European Union**

Norbert Wohlgemuth (Austria)

**The Gender and Energy Link to Environmental Sustainability**

Lorena Aguilar: The World Conservation Union (IUCN), Costa Rica

**Microcredit for Sustainable Energy Projects in the Developing World**

Dipal Barua: Grameen Shakti Bangladesh

**Role of Solar Dryers in Economic Development**

Lalita Balikrishnan: All-India Women's Conference (AIWC), Delhi, India

**Microcredit Experience, Sustainable Energy, and Women's Economic Development**

Aparna Basu: All-India Women's Conference (AIWC), Delhi, India

**Women's Economic Development Related to Sustainable Energy**

Manorama Bawa: President (AIWC) Delhi, India

**Gender, Energy and the Millennium Development Goals: Achievements and Opportunities**

Elizabeth Cecelski: Energy, Environment, Development, USA

**Gender Tools for National Energy Public Policy Planning**

Joy Clancy: University of Twente, The Netherlands

**Photovoltaic for Family Irrigation Systems in Brazil**

Thais Corral: South /South North Brazil

**Poverty and Gender – Global Prospective**

Barbara Farhar: National Renewable Energy Laboratory (NREL), Golden, Colorado, USA

**Gender, Energy, Health and Water Issues in Asia**

Jennifer Francis: Asian Development Bank, The Philippines

**Gender, Energy, and Climate Change Issues**

Minu Hemmati: Genanet, Focal Point, Gender, Justice and Sustainability, Germany

**Education, Health, Training, and Job Opportunities in Mexico**

Laura Kuri: Ayotl (Bioregional Resource Center), Mexico

**World Bank Programme in Poverty Reduction and Gender**

Dominique Lallement: ESMAP, The World Bank, USA

**International Initiatives and National Policy in Latin America**

Julia Martinez: Mexico

**Challenges and Opportunities in Poverty Reduction through Women's Uses of Energy**

Susan McDade: UNDP – USA

**Urban Poverty in Africa**

Sheila Meikle: University College, London, UK

**CSD-14 Activities in Gender and Energy**

Sheila Oparaocha: ENERGIA, The Netherlands

**Gender and Health Threats Related to Energy: Opportunities to Improve the Health of Women and Children**

Jyoti Parikh: Integrated Renewable Energy Development (IREDA), Delhi, India

- Jeannie Renne: Battelle Memorial Institute, USA
- Ulrike Roehr: Germany

**Roundtable on Gender and Energy Issues in the North**

Linda Sayigh: WREN, Brighton, UK

**Education, Training, and Job Opportunities for Women in Renewable Energy**

May Sengendo: East African Energy Technology Development Network (EAETDN), Uganda

**Women and Energy: Barriers and Opportunities**

Lulu Xingwana: Vice-Minister of Energy, South Africa

**An Overview of Sustainable Energy Development – Past Performance & Current Prospects**

Michael Jefferson: WREN Advisor, UK

**Critical Review of Renewable Energy Policies**

Thomas Johansson, Lund University, Sweden

**Challenges to Sustainable Energy Development**

John Hallock

**Prospects for Sustainable Energy Development**

Jose Goldemberg

**Renewable Energy Policies and Programmes for Industrial Development**

Irene Freudenschuss-Reichl

**Facilitating Renewable Energy Technological Innovation and Diffusion**

Nebojsa Nakicenovic

**Renewable Energy Policies and Programmes for Alleviating Climate Change**

R. Hinrichs-Rahlwes

**Raising Awareness for the Age of Renewable Energy**

Federico S. Fische

**Strategic and Political Challenges to Energy Availability**

Dan Plesch

**Uncertainties in the determination of emissivity and correlations between near infrared reflectance and thermal emittance of coated glass products**

Michael G. Hutchins, Sonnergy Ltd., Abingdon, UK

**Renewable Energy Research in the Seventh Framework Programme**

Wiktor Raldow

**Capacity building and market interventions to grow the demand-side use of renewable energy**

Brian Norton, Dublin Institute of Technology, Dublin, Ireland

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148–Prof Dr Teoman AYHAN		176–Dr James KIAZOLU	Liberia
148–Prof Dr Necdet OZBALTA		176–Dr Isaac OKOH	
148–Prof Dr Tuncay YILMAZ		177–Ms N PETRUSHKEVICH	Byelorussia
149–Prof Dr L VOLODYMYR	Ukrain	177–Dr Irina SOUKHI	
149–Mr Vadim DIUKANOV		177–Dr Evgeny SHIROKOV	
150–Dr Raymond Wright	Jamaica		
151–Prof P CARRARA	Ivory Coast		
151–Dr C IBRAHIM			
151–Prof Agbo N'zi GEORGES			
152–Dr A K RATURI	Papua N. Guinea		
152–Mr kingsford Karlo KOMUNA			
153–Min. L Ratsifandichamanana	Madagascar		
153–Mr M RATSIMIEBO			

## General Information

### Florence

Florence is a city that welcomes. Florence is really at the centre of the world. It is a city that has always welcomed and astounded its guests. The Salone dei Cin-

quecento that was created for the Medici Family's great meetings is now frequently used for the opening ceremonies of major congresses. This means that the city is still capable of offering historic venues and important places for 'meetings'.

This is a role that Florence plays daily through the thousands of people who come here for cultural reasons or for work. The city actually succeeds in playing a multiplicity of roles each day: history, art, culture and traditions, and it does so thanks to the commitments made by the municipal government. Florence with its monuments, the Uffizi Gallery, the Accademy Gallery with the statue of David, the Giotto Tower and all its surroundings lives of international fame as an art city, the worldwide interest in its artistic heritage and its cultural traditions, its geographic position, the famous 'green' region of Tuscany.

Florence has all the necessary facilities: an airport with daily flights from the most important European capitals, an important railway junction which links Florence to Rome and Milan, a motorway which connects Florence with Siena, San Gimignano, Arezzo, Pisa and Lucca and the famous Chianti area, an efficient train connection system and motorway from Pisa airport.

Florence, bedside being one of the most famous artistic cities of the world, hosts also an important University and many also an important University and many renowned research centres. A major renovation of the scientific infrastructures is under development. The attendant to a meeting of worldwide importance like the ESGAR will have the opportunity to be immersed in this new reality.

But Florence has also the advantage of having Congress facilities right in the middle of the city's business centre, near all the major hotels and tourist attractions and at a stone's throw from the railway station and from the airport terminal.

## Visas

Entry visas are not required for citizens of most European countries, the USA

and Canada. Citizens of other countries can obtain a visa at the Italian Embassy or Consulate in their country. A valid passport is required. A letter of invitation will be provided for those who need it.

For more information about visas, please check the Web site of the Italian Ministry of Foreign Affairs:

[http://www.esteri.it/eng/5\\_32\\_183.asp](http://www.esteri.it/eng/5_32_183.asp)

## How to Reach Florence

### *By Air*

Florence airport is only 4 km from the city centre. Bus and taxi are available between the airport and downtown Florence. A taxi ride from the airport to the city centre costs about Euro 20,00.

Pisa Galileo Galilei airport and Florence Amerigo Vespucci airport are served by several international airlines.

Pisa airport is about 90 Km far from Florence, and a shuttle train operates every hour between the airport and the main railway station in Florence. The trip lasts approximately 1 hour.

### *By train*

Eurostar trains connect Florence with Milan (approximately 2h. and 45 min.) and Rome (approximately 1h and 30 min.). The main railway station in Florence is Santa Maria Novella and it is located at walking distance from the Fortezza da Basso.

### *By Car*

The A1 (Autostrada del Sole) is the main motorway linking Florence to both northern and southern Italy. The A1 leads west to the coast and then to Genoa and the French border: both are toll motorways. The use of seat belts is mandatory. Car lights are compulsory in motorways. All road distances and speed limits are indicated in kilometres.

## Venue

The site of the WREC 2006 is Faculty of Architecture of Santa Verdiana Via P.A. Micheli, 2 in Florence. The Opening Ceremony and the Plenary Sessions will

be held at Palazzo dei Congressi, Piazza Adua 1, Florence, Italy, part of the famous Congress Citadel of Florence made by the Fortezza da Basso, Palazzo dei Congressi and Palazzo degli Affari. The Palazzo dei Congressi is a 19th century villa with outstanding period furnishings with a modern 1000 seat auditorium. There are more than 15 conference rooms that can accommodate approximately 1800 people and the available floor space comes to 4400 square meters. This Congress centre hosts international congresses, fairs and exhibitions and it is equipped with all the modern facilities. The site is within walking distance from the main Railway station and the downtown area of Florence. The International Airport 'Amerigo Vespucci' is connected to the town centre by shuttle buses. Moreover the International Airport of Pisa (about 80 km from Florence) is linked by trains to the Florence Railway Station.

### Language

The official language of the Congress is English.

### Badges

Each participant will receive a name badge upon registration. Participants are kindly requested to wear their badge during all congress activities and social events.

### Public Transportation

The historical area of Florence is relatively compact, and all major sites are within walking distance from the city centre. Florence has a fairly comprehensive network of local bus routes, and many have a stop at the main railway station. Bus tickets may be purchased at most coffee-bars and tobacconists. Two bus companies serving several cities around Florence have their terminal next to the main railway station.

### Taxis

A taxi ride from the airport to the city centre costs around Euro 15,00. Two taxi

companies operate in Florence and offer their service 24h/day. The phone numbers of the two companies are: 055-4242 and 055-4390. You can book a ride one day prior.

### Climate

The temperature in Florence during August is typical of an Italian summer, being the average temperature around 28°C. All the rooms in the Congress Centre are provided by air conditioning.

### Clothing

Informal for all the occasions.

### Banks

Money can be easily exchanged at all main banks and exchange offices downtown Florence. Traditional banking hours are: Monday through Friday 8:30-13:20 and 14:30-15:30. Banks are closed on Saturday and Sunday. Some automatic exchanging machines are located outside the major banks to provide 24-hour service.

### Electricity

Electrical current in Italy is 220 volts, 50-cycle AC. Italian outlets take only round-prong plugs. Appliances designed to operate on 110/120 volts need a voltage converter and a plug adapter.

### Time

The time in Florence is the Central European Time (Summer Time GMT +1)

### Medical Service

The number for the medical emergency service in Italy is 118. Chemists are open from 9.00 to 13.00 and from 16.00 to 20.00, Monday to Friday. The main chemist is located in Santa Maria Novella railway station and it is open 24 hours a day.

### Post Office

The Post Office is located next to Santa Maria Novella railway station and it is open from 8.15 to 19.00, Monday to Friday.

## **Additional Speakers Titles and details**

### **Update and Global Outlook for Concentrating Solar Power**

Fred Morse, Morse Associates, Inc.,  
Washington, USA

### **Economical Assessment of Wind Energy Development**

Tony White, London, UK

### **Monitoring and analysis of a building incorporating an actively controlled thermal mass strategy**

D.J. Warwick<sup>a,c</sup>, A.J. Cripps<sup>b</sup>,  
M. Kolokotroni<sup>c</sup>

<sup>a</sup> Buro Happold Consulting Engineers,  
2 Brewery Wharf, Leeds, LS10 1NE, UK

<sup>b</sup> Buro Happold Consulting Engineers, 17  
Newman Street, London, W1T 1PD, UK

<sup>c</sup> Department of Mechanical  
Engineering, Brunel University,  
Uxbridge, Middlesex, UB8 3PH, UK

### **Solar energy use in the poligeneration systems in Poland**

Dorota Chwieduk, Institute of  
Fundamental Technological Res., Polish  
Academy of Sciences, Warszawa, Poland

### **Uncertainties in the determination of emissivity and correlations between near infrared reflectance and thermal emittance of coated glass products**

Michael G. Hutchins, Sonnergy Ltd.,  
Abingdon, Oxfordshire, UK OX14 4WY, UK

### **Hydro Osmosis Power: an Unexplored Huge Source of Renewable Energy**

Adel O. Sharif, Centre for Osmosis  
Research and Applications, School of  
Engineering, University of Surrey,  
Guildford, UK

### **Free Renewable Energy Desalination (FRED)**

Mansur M. Abahusayn, Technology  
Transfer Enterprises. Dhahran, Saudi  
Arabia

### **Use of Solar Water Heating in Government Institutions. A Case of Hospital Design in Malawi**

B.W. Zingano, Zingano and Associates,  
Lilongwe, Malawi

### **Housing indoor environment in the historical urban tissue. Study Case: Havana**

Prof. Arch. Dania González Couret PhD,  
MSc. Arch. Alex Pérez, Arch. Yurima  
Chion, Arch. Yandy Luaces, Faculty of  
Architecture, ISPJAE, Havana City, Cuba

### **Trends and Issues in Renewable Energy Education**

H.P. Garg, Centre for Energy Studies,  
Indian Institute of Technology, New  
Delhi, India

### **Renewables – Crucial for Global Sustainable Development**

Pradeep Chaturvedi, Indian Association  
for the Advancement of Science, Delhi,  
India

### **Contribution of Renewable Energy Technologies to the Achievement of Long-term Sustainability Goals**

Werner Rothengatter, President of the  
World Conference on Transport  
Research (WCTR), Head of the Institute  
of Economic Policy Research (IWW),  
University of Karlsruhe, Germany

### **Renewable Energy Policies and Programmes for Alleviating Climate Change**

Rainer Hinrichs-Rahlwes, Käthe-  
Niederkirchner-Str. 13, D-10407 Berlin,  
Germany

### **Dynamic modelling of solar thermal cooling using the BaCl<sub>2</sub> – ammonia pair**

R.E. Critoph, Y. Zhong, School of  
Engineering, University of Warwick,  
Coventry CV4 7AL, UK

### **India - The World's Fourth Largest Wind Power Producer**

Sarvesh Kumar, Vestas RRB India Ltd.,  
New Delhi, India

### **Accelerated Growth of Renewables in India**

Rakesh Bakshi, LFIMA, FIE, FNAE,  
Chairman RRB Consultants and  
Engineers Pvt. Ltd., New Delhi, India



### **Material Aspects for Solar Thermal and Energy Saving Applications**

Panayiotis Yianoulis: University of Patras, Dept. of Physics, Patras, Greece

### **The Global Market Initiative (GMI) for Concentrating Solar Power (CSP)**

Rainer Hinrichs-Rahlwes, Käthe-Niederkirchner-Str. 13, D-10407 Berlin, Germany

### **Artificial Neural Networks and Genetic Algorithms for the Optimisation of Solar Thermal Systems**

Soteris A. Kalogirou, Higher Technical Institute, P.O.Box 20423, Nicosia 2152, Cyprus

### **Policy Research on the Environmentally Sustainable Transportation and Renewable Energy in China**

Jiang Yulin, Center for Sustainable Transportation (CST), Ministry of Communications (MOC), P.R. China

### **Renewable Energy Policies and Programmes for the Alleviation of Climatic Change**

John Constable, Policy and Research Director, The Renewable Energy Foundation, London, UK

### **Shri Rakesh Bakshi, LFIMA, FIE, FNAE, Chairman RRB Consultants and Engineers Pvt. Ltd.**



In recognition of his immense contribution in the crucial area of alternate sources of energy, on the occasion of the Republic Day in 1991 the Government of India honoured Mr.

Rakesh Bakshi with the Padma Shri, one of India's high civilian award. He is a first class Graduate in Mechanical Engineering with Postgraduate qualifications in Computer Science and Foreign Trade. In 1995, he was recognized by the British Wind Energy Association as a "Wind Energy Pioneer" and in 1997 he was conferred the

"Diploma of the National Association for Danish Enterprise and His Royal Highness Prince Henrik's Medal of Honour". In 1999, he was bestowed with "Climate Technology Leadership Award" by Climate Technology Initiative (CTI) at the occasion of the 5th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). In 2000 he was bestowed with "The 2000-Millennium Award" by the World Renewable Energy Network (WREN) on the occasion of the World Renewable Energy Congress VI and in the year 2000 he was also conferred with the "Best Industrialist of 2000 Millennium Award" by the Rural Education and Development Society, Vellore, Tamil Nadu. In the year 2001 he was conferred with "The Gold Medal 1999-2000" for Management by the Indian Council of Management Executives (ICME), Mumbai and in 2002 he was bestowed with "The Chairman Award for the Promotion of Renewable Energy" by the World Renewable Energy Network (WREN) on the occasion of the World Renewable Energy Congress VII. In 2005 he has been bestowed with the "SESI-2004: Award for Lifetime Achievement in Renewable Energy" by the Solar Energy Society of India, the Indian Section of the International Solar Energy Society and he has also been conferred by the Rotary Club of Adyar, Chennai with Rotary's Highest Award "For the Sake of Honour Award" for his pioneering contribution to the field of Wind Energy in India.

Presently he is Member (i) Board of Governors of Winrock International India (WII); (ii) Chairmen Committee of World Council for Renewable Energy (WCRE); (iii) Confederation of Indian Industry (CII) National Committee on Environment; (iv) CII-Sohrabji Godrej Green Business Centre (GBC) Renewable Energy Council; (v) Steering Committee of the All India Management Association (AIMA) Centre for Public

Governance (CPG); (vi) Board of Governors of the National Institute of Technology (NIT) Kurukshetra; (vii) Governing Council, Bankers Institute of Rural Development (BIRD) Lucknow; (viii) Executive Committee of the International Chamber of Commerce-ICC India; (ix) Managing Committee of The Associated Chambers of Commerce and Industry of India (ASSOCHAM); and (x) Executive Committee of Federation of Indian Chambers of Commerce and Industry (FICCI).

In addition he is (i) Honorary Visiting Professor in the Centre for Energy Studies (C.E.S.) at the Indian Institute of Technology (IIT), Delhi; (ii) Vice President of the India Energy Forum; (iii) Regional Vice President (North) of the Solar Energy Society of India (SESI); (iv) Chairman of FICCI's Scandinavia Committee and (v) Chairman of the Organizing Committee constituted by ASSOCHAM for SAARC Renewable Energy Summit 2006.

Mr. Rakesh Bakshi is also Managing Director Vestas RRB India Ltd. and Solchrome Systems India Ltd.

RRB Consultants and Engineers Pvt. Ltd. (RRB) has the unique distinction of being a forerunner in establishing Wind Power as a major power generation source in India. RRB is also an Independent Power Producer based on wind energy. RRB is a well established Indian company engaged in the field of new and renewable sources of energy in India, since 1984.

## World Renewable Energy Congress IX, Florence ITALY – August 19–25, 2006 PROGRAMME AT A GLANCE

Time	Saturday August 19	Sunday August 20	Monday* August 21	Tuesday** August 22	Wednesday** August 23	Thursday** August 24	Friday** August 25
08:00–08:45		WREN 3–mile race Breakfast	All Activities will be at Congress Centre	Chairmen & Speakers Breakfast	Chairmen & Speakers Breakfast	Chairmen & Speakers Breakfast	All Activities will be at Palace Vecchiot
09:00–10:30	WREN Council Meeting	Workshops Poverty & Gender PV	OPENING CEREMONY	Technical Sessions	Plenary A & B	Plenary A & B*	Plenary
10:30–11:00	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00–13:00	WREN Council Meeting	Poverty and Gender, PV Workshops	Plenary	Technical Sessions	Technical Sessions	Technical Sessions*	Final Reports & Closing Ceremony
13:00–14:30	Lunch Break	Workshops	Lunch Break	Lunch Break	Lunch Break	Lunch Break	Lunch Break
14:30–16:00	Special visit to Uffizi Gallery	Workshops Continue	Plenary A & B	Technical Sessions	Technical Sessions	Technical Sessions	
16:00–16:30	Tea Break	Tea Break	Tea Break		Tea Break	Tea Break	
16:30–18:00			Plenary				
18:00–19:00				Three Visits To Bologna (LEA) or Pisa (Geoth.) or Florence(PV) ****		Panel Discussion LEA, MT, PC & WE ****	Trip To Sienna & Dinner ***
19:00–20:00	WREN Dinner	Opening Reception Free to All	VIP Dinner by Invitation Only		CONGRESS BANQUET ****	Cheese & Wine	
20:00–22:00							

\* REGISTRATION is open every day 8:30–5:30. All Monday Congress will be at Florence Congress Centre.

\*\* Saturday to Friday (Except Monday) all activities will be at Florence University, Architecture Department

\*\*\* Ticket is required and can be purchased at registration desk.

\*\*\*\* 1. Low Energy Architecture, Photovoltaic Applications and Solar Thermal Applications. 15 Architecture Sustainable? 2. Marine Energy Technology: The Rollout Marine Energy Renewables. 3. Wind Energy Applications: Wind Energy, killing the myths. 4. Policy Issues and Energy, Poverty Reduction and Gender: How policy-makers best foster poverty reduction through the use of renewable energy?

• International Teaching in Architecture Energy and Environment (TIA) Sessions at WREC. All participants are welcomed. This is TIA fourth meeting. 1995 & 1997 were at Florence, 2000 was at Oxford and 2006 will be at WREC-IX.