

Program of the RIO 3 Congress (30/11/03)

Monday, 1st of December 2003

8.30 Registration, Opening of *LAREF 2003*

9.00 Opening RIO 3:

- Stefan Krauter, General Chairman of *RIO 3*, Brazil:
Intention of RIO 02/3, overview of RIO 3 - LAREF
- Wagner G. Victor, Secretary of State of Energy, Shipbuilding Industry and Petroleum, Rio de Janeiro, Brazil: *Opening and Introduction*
- Maurício T. Tolmasquim, Executive Secretary of the Ministry of Mines & Energy, Brazil: *The Brazilian Energy Matrix and Greenhouse Gas Emissions: Actual situation, plans and adequate measures.*
- Luiz Pinguelli Rosa, President of Eletrobrás, Brazil:
Initiatives to implement Renewable Energies in the Brazilian energy matrix: National production facilities, attraction of investors.

10.40 Coffee break

11.00 Introduction

- Rosa Moreno, Coordinator of the Choose Positive Energy Campaign, Greenpeace International: *Agenda of necessary tasks*
- Hermann Scheer, President Eurosolar and World Council for Renewable Energy (WCRE), Germany: *The Solar Age*
- Franz Alt, Germany: *War for Oil or Peace by Solar Power*
- Carlos Minc, Deputy of the State of Rio de Janeiro, Brazil:
Non-Polluting Energy Generation in Rio de Janeiro

12.30 Lunch

14.00 Activities

- 14.00 Mozart Schmitt de Queiroz, Renewable Energy Manager Petrobras, Brazil:
The strategic vision of Petrobras for acting in the area of Renewable Energies.
- 14.30 Laura Porto, Head of Renewable Energy Department, Ministry of Mines & Energy, Brazil: *The Brazilian PROINFA Program.*
- 15.00 Marcello Storrer Prado Garcia, Eólica Industrial Ltda., Brazil:
Legal Aspects of PROINFA: The Brazilian Renewable Energy Incentive Program.

15.30 Valentina Dinica, Hans Bressers, University of Twente, The Netherlands:
The Implementation of Renewable Energy Policies: Theoretical Consideration and Experiences from Spain, The Netherlands and The United Kingdom.

16.00 Coffee break

16.20 Gunnar Boye Olesen, Emilio Lebre la Rovere, International Network for Sustainable Energy: *NGO Proposal and Visions for International Cooperation for Sustainable Energy.*

16.40 Angelina Galiteva, Chair Committee WCRE, CES Green LA., USA:
Challenges and Opportunities for the Widespread Implementation of Renewable Energy Technologies.

17.00 Enio Bueno Pereira, Fernando R. Martins, INPE, Sergio Colle, Samuel Abreu, UFSC, Brazil; Tom Hamlin, UNEP, France:
SWERA - Solar and Wind Energy Resource Assessment.

17.30 Hermann Scheer, Angelina Galiteva, Stefan Krauter
Foundation of the Latin American Section of the World Council of Renewable Energy (WCRE)

Tuesday, 2nd of December 2003

9.30 Photovoltaics 1

Chairman: Stefan Krauter

9.30 Peter Thomas Landsberg, University of Southampton, United Kingdom:
Photovoltaics - a brief history.

10.00 Marco Antonio Galdino, CEPEL, Brazil:
The Implantation of a Grid-Connected PV System at CEPEL.

10.20 Jancarle L. Santos, Universidade Federal do Ceará, Brazil:
Maximum Power Point Tracker for PV Systems.

10.40 Coffee break

11.00 Paulo César Marques de Carvalho, Universidade Federal do Ceará, Brazil:
A Static Linear Simulation for the Thermal Behaviour of Photovoltaic Modules.

11.20 Neyde Yukie Murakami Iha, André Sarto Polo, Universidade São Paulo, Brazil:
Novel Dyes to Sensitize Photo-electrochemical Solar Cells: Researches on Dye- Cell for a Sustainable Energy.

11.40 André Sarto Polo, Neyde Yukie Murakami Iha, Universidade São Paulo, Brazil:
Clean and Renewable Energy form dye-sensitized Solar Cells using fruit extracts.

12.00 Hans- Georg Beyer, Samuel L. Abreu, Sergio Colle, Karime L. Z. Glitz, Ricardo Rüther, Universidade Federal do Santa Catarina, Brazil, :
Isolated hybrid PV-Diesel power plants design method.

12.20 Lunch

14.00 Photovoltaics 2

14.00 Paulo César Marques de Carvalho, Universidade Federal do Ceará, Brazil:
Sizing Method of a photovoltaic powered electro dialysis plant.

14.20 Stefan Krauter, General Chairman of RIO 3:
Rural electrification by PV in terms of carbon trading.

14.40 Education

- 14.40 Mark C. Fitzgerald, Douglas J. Arent, Institute for Sustainable Power, USA:
Quality programs for workforce development for renewable energy technologies.

15.00 Coffee break

15.20 Solar Thermal Systems

Chairman: Rolf Hanitsch

- 15.20 Miguel Toledo Velázquez, José L. León Téllez, G. Tolentino Eslava, Omar Nava Rodríguez, Instituto Politécnico Nacional, Mexico:
Theoretical Study of a modular solar plant for electrical generation with a 500 kW gas-turbine.
- 15.40 Emin Kulic, Mechanical Engineering Faculty, University Sarajevo, Bosnia and Herzegovina:
Methodology of Testing and Data Processing to Predict the Main Thermal Characteristics of Flat-Plate Water Cooled Solar Collectors.
- 16.00 Miguel V. Toledo V., Omar R. Nava R., Instituto Politécnico Nacional. México, D.F. Raúl L. Lugo L., Alejandro A. Torres, Universidad Autónoma Metropolitana, México, D.F.
Thermal Simulation of a Concentrator Pipe Composed with Normal Radiation Distribution.
- 16.20 José Nuno Carranca, M.A.N. B&W do Brasil:
Bio-electricity by combustion of vegetable and animal oils in diesel engines.
- 16.40 Solsam Sunergy AB Sweden/Spain
The Thermo Chemical Accumulator

17.00 Book Release 1:

Paulo César Marques de Carvalho, Universidade Federal do Ceará, Brazil: Release of the Book: *Geração Eólica (Wind power generation)* - in Portuguese

Contents:

- Difusão de conceitos sobre energia eólica;
- Difusão da tecnologia de geradores eólicos;
- Difusão dos aspectos técnicos de geradores eólicos autônomos e ligados à rede;
- Difusão dos aspectos econômicos da geração eólica;
- Difusão dos aspectos ambientais da geração eólica;
- Difusão das experiências acumuladas no campo eólico no Brasil, em especial no Ceará;
- Difusão das experiências acumuladas no campo eólico na Alemanha;
- Capacitação de recursos humanos na área de geração eólica.

Wednesday, 3rd of December 2003

9.00 Energy Efficiency & Energy Saving

Chairman: Sergio Dieletachi, Energy Campaigner, Greenpeace Brazil

- 9.00 Howard Geller, Executive Director Southwest Energy Efficiency Project SWEEP, Boulder, Colorado, USA:
Energy Revolution: Policies for Sustainable Future.
- 9.20 Manfred Koehler, University of Applied Sciences Neubrandenburg, Germany:
Green roofs - a part of the Program Reducing the Urban Heat Island.
- 9.40 J. O. Jaber, Department of Mechanical Engineering, Hashemite University, Zarqa; R. Mamlook, Computer Science Department, Zarka Private University, Zarqa; W. Awad, Civil Engineering Department, Al-Balqa' Applied University, Amman, Jordan:
Assessment of energy conservation and awareness programs in the household sector in Jordan.

10.00 Implementation of Projects

- 10.00 Ricardo Wargas, Myrthes Marcelle Santos, Tatiana Lauria, Enrique Wittwer, SEBRAE/RJ-GTZ, Brazil-Germany:
Evaluation of the economic-financial impacts of energy efficiency projects in small-sized industries.
- 10.20 Ana Luz Quintanilla-Montoya, Universidad Autónoma de Baja California, Mexico:
The use of renewable energy resources as the trigger for rural development and policy planning in arid-coastal zones of Baja California, Mexico.

10.40 Coffee break

11.00 CO₂ & other greenhouse gas Emissions

Chairman: Sergio Dieletachi, Energy Campaigner, Greenpeace Brazil

- 11.00 Shiv Pratap Raghuvanshi, Renu Singh, A. K. Raghav, A.Chandra, Indian Institute of Technology Delhi, India:
Carbon Dioxide and Methane Emission from Power Generation in India.
- 11.20 André Felipe Simões, Roberto Schaeffer, COPPE/UFRJ, Rio de Janeiro, Brazil:
Mitigation options for CO₂ emissions in the air transportation sector in Brazil.

- 11.40 Katia Cristina Garcia, LIMA/COPPE/UFRJ, Lílian Bechara Elabras Veiga, Marco A. Maleck Coutinho, COPPE/UFRJ, Rio de Janeiro, Brazil:
CO₂ Emissions Inventory of one of the Major Brazilian Steel Makers
- 12.00 Osvaldo L. S. Pereira, Universidade Salvador, Brazil:
Determinação da Linha de base e Calculo da Redução de Emissões do Efeito Estufa.
- 12.20 Thomas Rensus Fendel, FENDEL Tecnologia, Brazil:
Air-cleaning Bioenergy.

12.40 Lunch

14.20 Water Processing

Chairman: Marco Schmidt, TU Berlin

- 14.20 Maria Eugênia Vieira da Silva, Universidade Federal do Ceará, Brazil:
Modular Solar Thermal Desalination System with Flat Plate Collector.
- 14.40 Paulo César Marques de Carvalho, DEE – Universidade Federal do Ceará, Brazil:
Analysis of the use of Wind Powered Reverse Osmosis Seawater Desalination Plants in the Northeast region of Brazil.

15.00 Hydrogen Economy

- 15.00 Miguel Luiz Miotto Negro, Robert C. Garner, Marcelo Linardi, Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo, Brazil:
Mass Production of Hydrogen in Brazil.
- 15.20 Janusz Andrzej Kozinski, McGill University, Energy & Environmental Research Laboratory, Montreal, Canada:
GHG-Free Generation of Hydrogen Fuel.

15.40 Coffee break

16.00 Thermal Storage

- 16.00 A.Busso, Universidade Nacional del Nordeste, Argentina; Georgiev, P.Roth, Technical University Federico Santa Maria, Chile:
Underground Thermal Energy Storage – First Thermal Response Test in South America.

- 16.20 M. Balghouti, S. Kooli, INRST, India:
Experimental Study of the Thermal and Hydrous Behaviour of a Soil Heated by a System of Buried Capillary Plaits. Storage of Energy in the Under Ground of the Agricultural Greenhouses.

16.40 Book Release 2

- 16.40 Howard Geller, Executive Director Southwest Energy Efficiency Project SWEEP, Boulder, Colorado, USA: Presentation of the Book: *“Energy Revolution: Policies for Sustainable Future”*.

.....Special Event at LAREF on Wednesday, 3rd of December (free of charge).....

German Forum

Chairman: Helmut Sendner

11.00 Julia Krohn, Deutsche Energie Agentur, DENA, Berlin, Germany:

Renewables – the future of energy: The German experience

- *Economic and environmental aspects*
- *Legal framework*
- *Innovative business*

11.30 Discussion

12.00 Lunch Cocktail at the German exhibition stand

13.00 Rolf-Dieter Linden, Denaro Energiesysteme, Unna, Germany:

Biomass for Sustainable Energy Supply

- *realization of efficient and sustainable regional Biomass projects*
- *potentials, projects, jobs, cooperation and CO2 certificates*

13.30 Discussion

14.00 J. Dietrich Mayer, Geschäftsführer, eternegy GmbH, Mannheim, Germany:

Wind Power: A German History of Success

- *from kilowatt to megawatt*
- *from onshore to offshore*
- *experiences in project-development*
- *possibilities in Brazil*

14.30 Discussion

15.00 Eberhard Göde, Universität Stuttgart, Germany:

Water Power for Decentralized Power Supply

- *experiences in Germany*
- *transferability to Brazil*
- *possibilities of cooperation with German companies and organizations*

15.30 Discussion

16.00 Burkhard Holder, speaker of the Solar Industry Association and Working Group Export, Germany:

Sun for Heat and Electricity

- *technical and political experiences in Germany*
- *what is transferable to other countries*
- *which cooperation with the German solar industry are possible*
- *which factors affect the efficiency of solar energy systems*

16.30 Discussion

17.00 End of German Forum

Thursday, 4th of December 2003

9.00 Wind Power

Chairman: Ulrich von Eitzen, Nordex Energy, *RIO 3 - LAREF*

9.00 Everaldo Feitosa, Director Brazilian Wind Energy Center – Vice President World Wind Energy Center, Brazil:

Wind Energy in Brazil and Latin America – Current situation and future perspectives (What is missing for a takeoff in Brazilian Wind Power).

9.20 Ulrich von Eitzen, Nordex Energy, Germany:

The Jepirachi Wind park – Columbia's and Latin America's biggest Wind Park.

9.40 R. E. Hanitsch, D. Schulz, Institute of Energy and Automation Technology, TU Berlin, Germany:

Wind Energy Converters And Some Aspects Of Power Quality.

10.00 Guilherme Gorga Azambuja, Alexandre Vagtinski de Paula, Pontificia Universidade Católica do Rio Grande do Sul, Brazil:

PRO-FAE: Tool for Computational Aid in the Preliminary Project of Wind Farms.

10.20 H. Irps, Agricultural Research Center, Institute of Production Engineering and Building Research, Germany:

Further Development of the Wind Energy Converter MoWEC for Stand Alone Use.

10.40 Coffee Break

11.00 Marcelo Cereser, Pontificia Universidade Católica do Rio Grande do Sul, Brazil:
Analysis of the Wind Potential of the City of Aceguá.

11.20 Guilherme Gorga Azambuja, Gustavo de Marsillac Peña, Jorge Antonio Villar Alé, Fabiano Daher Adegas, Tcharles Coutinho Hilbig NUTEMA, Pontificia Universidade Católica do Rio Grande do Sul, Brazil:

Power Curve of Small Wind Turbine Generators - Laboratory and Field Testing, Wind Farm Sizing: A Computational Micro Siting Analysis.

11.50 Adão Linhares Muniz, Fernando Pinto Ramalho, Secretaria da Infra-Estrutura do Estado do Ceará - SEINFRA: *Wind Energy – Activities of the State of Ceará*

12.20 Lunch

14.00 Biomass 1

Chairman: Fernando Gabeira, Federal MP

14.00 Bautista Vidal, Initiator & Director of the Brazilian Program Pró-Alcool, Brazil:
The Brazilian Pró-Alcool Program.

15.00 Carlos Nagib Khalil, Chemist of petroleum of CENPES, Brazil:
The Process of Production of Biodiesel from the Mamona seed.

15.20 Paulo de Sousa Coutinho, Eletrobrás, Brazil:
The Bio-Electricity Program of Eletrobrás.

15.40 Peteris Shipkovs, Institute of Physical Energetics Latvian Academy of Sciences,
Latvia:
Biomass for Sustainable Development in Latvia.

16.00 Debra Jenkins Devine, Exus Ltd., UK:
Modular Small Scale Wood Gas CHP.

16.20 Akbar Shabani Kai, Giti Taleghani, Center for Development of New Energies -
Atomic Energy Organization of Iran:
Biogas Incentive in Iran.

16.40 Coffee break

17.00 Biomass 2

17.00 Christopher Maltin, Organic Power Ltd.,UK:
A Revolution in Anaerobic Digestion.

17.40 Janusz Andrzej Kozinski, McGill University, Energy & Environmental Research
Laboratory, Montreal, Canada:
Biomass-Based Fuels: A Source of Clean Renewable Energy.

18.00 Sandro Barros Ferreira, Instituto Tecnológico da Pontifícia Universidade
Católica do Rio de Janeiro, Brazil:
*The Use of Biomass Fuels in Gas Turbine Combined Gasification vs. Externally
Fired Cycle.*

18.20 Leandro Dalla Zen, UNISINOS – CIENTEC, Brazil:
*Utilization of the Co-Firing, Wood/Mineral Coal, in Fluidized Bed Combustion in
Small Power Plants.*

Friday, 5th of December

Workshop: by InWEnt, Germany

„Renewable Energy and Innovate Concepts for Energy Efficiency in Urban Architecture“

9.00 Architecture, Culture & Energy Efficiency

Chairman: Michael Laar, Germany / Brazil

9.00 Severiano Mário Porto, Manaus, Brazil:
Modern Regional Architecture in Northern Brazil.

10.45 Coffee break

11.00 Building Systems & Energy Efficiency

Chairman: Klaus Knecht, InWEnt, Germany

11.00 F.W.Grimme, Michael Laar, Chris Moore, Institute for Technology in the Tropics,
Cologne/Germany:
Man & Climate – Are we losing our climate adaptation?

11.30 Anthony O. Pereira, Jörn Jürgens, altPower inc., USA:
Case Studies for Building Integrated Photovoltaic (BIPV) Facades in the United States.

12.00 Manfred Koehler, Marco Schmidt, Michael Laar, University of Applied Sciences
Neubrandenburg, Germany:
Roof Gardens in Brazil.

12.20 Ulrich Porsche, Manfred Koehler, University of Applied Sciences Neubrandenburg,
Germany:
Life Cycle Costs of green roofs.

12.45 Lunch

14.00 Legislation & Incentives

Chairman: F.W. Grimme, ITT-Cologne, Germany

14.00 Luiz Paulo Conde, Vice-Governor, Rio de Janeiro.
Architects & Politics – do they make the difference?

14.20 Marcelo Perret, IAB – Rio de Janeiro:
Energy Legislation in Brazil.

- 14.40 Angelina Galiteva, chair committee World Council for Renewable Energy (WCRE), USA: *Policies and incentives to encourage sustainable design elements in architecture and new constructions*

15.10 Coffee Break

15.30 Urban planning, Architecture & Vegetation

Chairman: Marcelo Perret - IAB Rio de Janeiro, Brazil

- 15.30 Marco Schmidt, Technical University Berlin, Germany:
*Energy saving strategies through the greening of buildings
The example of the Institute of Physics of the Humboldt-University
in Berlin- Adlershof, Germany.*
- 15.50 Michael Laar, Germany / Brazil:
The Revitalization of Central City Areas as a Mean for Urban Sustainability - The Sustainable Urban Module.
- 16.10 Manfred Koehler, Marco Schmidt, Michael Laar, University of Applied Sciences Neubrandenburg, Germany:
Green Roofs against Urban Heat Islands.
- 16.30 Ingo Häberle, Michael Laar, NGO Florescer, Brazil:
Reforestation in Urban Areas through a NGO – A Social & Ecological Success Story.

17.00 Declaration of RIO 3

Conclusions, Measures, Control Mechanisms, Outlook

18:00 OFFICIAL END

Saturday, 6th of December

.....Special Event by *InWEnt* (free of charge) Hall E

9.00 Rural electrification & use of Renewable Energies for the production of marketable and goods services

Chairman: Klaus Knecht

Klaus Knecht, InWEnt, Berlin/Colgne, Germany:

Preface to the InWEnt workshop "Renewable Energy and Innovative Concepts for Energy Efficiency in Urban Architecture"

Georg Hille, Freiburg, Germany:

The use of renewable energies in the production of goods and services as a contribution to regional development.

Susanna Maia, BRASAS, Brazil:

To be announced

Joerg-Dieter Anhalt, IDER, Fortaleza, Brazil :

Productive use of solar energy: Organic architecture.

Joerg-Dieter Anhalt, IDER, Fortaleza, Brazil :

The use of renewable energies in the production of goods: Seaweed.

Marcio Giannini Pereira, CEPEL, Brazil:

Elaboration of Indicator of Rural Development (IRD) in the Ambit of the National Program of Rural Electrification "Luz no Campo" for Santa Catarina's State – Phase Ex-Ante.

Norma do Nascimento Batista, Márcia Marques de Queiroz Carvalho, Alan Emanuel

Dualibe Ribeiro, PPE/COPPE/UFRJ, Brazil :

The Social and Economic Benefits of Supply Energy to Isolated Location.