

**Program RIO 6 – World Climate & Energy Event**

**LAREF 2006 – Latin America Renewable Energy Fair**

**Hotel Rio Othon Palace  
Copacabana  
Rio de Janeiro, Brazil  
17<sup>th</sup> and 18<sup>th</sup> of November 2006**

Date	17 <sup>th</sup> of November 2006		18 <sup>th</sup> of November 2006		
Hall Session	ITAIPU B	Mar Azul	ITAIPU A & FOYER	ITAIPU B	Mar Azul
<b>1<sup>st</sup></b> 8.30 - 10.30	9.00 Opening <i>RIO 6</i> Political issues	8.30 Press conference	<u>Public Exhibition (both days):</u> Latin-America Renewable Energy Fair – <i>LAREF 2006</i>	8.30 Franz Alt “Renewables for a better World”	9.00 <u>Workshop CRESESB</u> “Solar Silicon Production in Brazil for Export”
	10.30 Hansjörg Gabler: “Solar energy overview”			9.00 Wind Power	
<b>2<sup>nd</sup></b> 11.00-12.45	11.00 Sustainability, Urbanism & Transport		<u>Public Events (both days):</u> Public cooking with solar oven	10.40 Biomass & Biofuels	
<b>Lunch</b> 12.45-14.00			Biodiesel & Solar Vehicles drive		
<b>3<sup>rd</sup></b> 14.00-16.00	14.00 <u>Workshop GTZ-Eletróbrás</u> “Decentralized Rural Electrification via photovoltaic Systems - Experiences, Opportunities and Challenges”	14.00 Investment, Financing, Carbon Trading	Solar powered concert	14.00 Biomass & Biofuels	14.00 Education, Capacity Building
					15.20 Solar thermal energy systems
<b>4<sup>th</sup></b> 16.00-18.00	17.00 Politics of implementation of Renewable Energy	15.45 <u>Workshop University of Twente</u> “Concept generation of future PV products”	20.00 Official Conference Banquet	16.00 Panel Discussion Heinrich-Böll-Foundation “Biofuels”	17.00 Solar Photovoltaic Energy Systems

### 8:30 Press Conference

Intention of *RIO 6*, Basics on Sustainability & Renewable Energies, Public Benefits, relevant Developments, Highlights of *RIO 6*, *LAREF* Exhibition & Fair, and Public Events

### 9:00 Opening, Event presentation, Politics

Opening and chairman:

**André Trigueiro** (Brazil)

*TV-journalist of Globo News*

- **Alain Lambert** (Brazil) *UNEP/GEF National Coordinator in Brazil*
- **Silas Rondeau** (Brazil)\* *Minister of Mines & Energy – MME*
- **Claúdio Longone** (Brazil) *Secretário Executivo – MMA*
- **Mauro Passos** (Brazil) *Federal Representative*
- **Carlos Minc** (Brazil) *State Representative*
- **Lucia Ortiz** – *Coordinator of the working group on energy of the Brazilian NGO Forum*
- **Dietrich Mayer** of NATENCO (Germany) *Renewable energy developer*
- **Representative** of the *Embassy of the Federal Republic of Germany*
- **Stefan Krauter** (Germany/Brazil) *General Chairman of the RIO 6 Event*

\* Invited, not yet confirmed

10:10 *Coffee break*

### 10:30 Keynote speech

**Hansjörg Gabler** (Germany)

*Co-Director of the Center of Solar Energy and Hydrogen Research (ZSW), Stuttgart*

**“Outlook on Solar energy”**

### 11:00 Sustainability, Urbanism & Transport

Chairman: **Marco Schmidt** (Germany)

*University of Technology Berlin - TUB*

11:00 Roberto Lamberts (Brazil)

*Federal University of Santa Catarina – UFSC*

**“Bioclimatic Buildings”**

11:20 Khosrow Ghavami (Brazil)

*Catholic University of Rio de Janeiro - PUC-Rio*

**“Use of ecological materials in architecture”**

11:40 Marco Schmidt (Germany)

*University of Technology Berlin - TUB*

**“Energy and water, a decentralized approach to an integrated sustainable urban development”**

12:00 Hartmut Grewe (Germany)

*Konrad-Adenauer-Stiftung*

**“Using renewable Energies for Poverty Reduction”**

12:20 Geoffrey I. Nwaka (Nigeria)\*

*State University of Abia*

**“Planning sustainable cities in Africa: Strategies towards social harmony”**

12:45 *Lunch*

### 14:00 Investments, Financing, Carbon Trading

Chairman: Rolf Michael Bonhof (Brazil)  
*President of Petersen Matex Limitada, Rio de Janeiro*

14:00 Hajime Uchida (Japan/Brazil)

Sumitomo Mitsui Bank

**“How to carry our carbon projects in Brazil”**

14:15 Diogo Ladvocat Negrão Couto (Brazil)

*University of São Paulo - USP*

**“Energy generation from landfill gas – Contribution to sustainable development”**

14:30 Marcelo Costa Almeida (Brazil)

*University of São Paulo - USP*

**“How much might biogenic methane emissions affect biofuels greenhouse gases balance?  
An analysis for the Brazilian ethanol from sugarcane”**

14:45 Abdoulaye BA (Senegal) \*

*Compagnie Sahélienne en Energies Renouvelables – COSER*

**“Business opportunities in electrical energy sector for rural and urban  
areas Senegal/West Africa”**

15:00 Cláudio Albuquerque Frate (Brazil)

*Universidade de Brasília - UNB*

**“Electrification policy for isolated communities in Brazil and sustainable development  
indicators”**

15:30 *Coffee break*

### 15.45 Workshop “Concept generation of future PV products”

Learn how to generate innovative product concepts for PV products in a future scenario

**Held by Angele Reinders**

*Department of Design, Production and Management*

*University of Twente, The Netherlands*

**Objective:** Concept generation will take place according to approved methods used by industrial designers and will yield unexpected, but not unthinkable PV product concepts. This workshop is intended for engineers, scientists and project managers who would like to gain new ideas for PV projects.

The workshop will content of a short introduction into methods, brainstorm, future visualization and generating product concepts

**Introduction**

**Experimental phase**

**Duration:** 2,5 hours

**max. participants:** 15-20

### 14:00 Workshop GTZ-Eletróbrás

“Photovoltaics in Rural Electrification –Experiences, Opportunities and Challenges”

Chairman: **Detlev Ullrich**, gtz

#### **Objective:**

The objective of the workshop is to analyze the obstacles to the dissemination of photovoltaic systems in rural off-grid areas and to identify strategies and actions to remove these obstacles.

#### **Target group:**

The workshop addresses managers and technicians of utilities, representatives of governmental and non governmental organizations involved in rural electrification and renewable energies, scientists as well as representatives of the solar industry.

14:00 **Opening session**, *Representatives of GTZ and Eletróbrás*

14:15 Hansjörg Gabler, *ZSW Stuttgart, Germany*

**“Photovoltaics in rural electrification – Experiences from other countries (China, etc.) “**

15:00 Roberto Zilles, *University of São Paulo,*

**“Brazil technical standards for Solar Home Systems in Brazil – Conceptual design and application example”**

15:20 *Coffee break*

15:30 Hugo Machado Silva Filho, *COELBA, Bahia, Brazil,*

**“Rural Electrification with Solar Home Systems – Experiences and views of a power distribution concessionaire”**

16:00 **Debate** on the regulatory framework and politics for rural electrification with Solar Home Systems in Brazil (MME, ANEEL, and speakers)

### Politics of Implementation of Renewable Energy Integration

Chairman: Sven Teske (Netherlands)  
*Greenpeace International Energy Expert*

17:00 Marcelo Furtado (*Greenpeace Brazil*), Sven Teske (*Greenpeace International*)

**“The Global Energy Scenario”**

17:15 Laura Porto (Brazil)

*Director of Renewable Energy Department, Brazilian Ministry of Mines & Energy – MME*

17:30 Hugo Altomonte (Chile)

*CEPAL, Comisión Económica para América Latina (Economic Commission for Latin America (ECLA)*

**“Renewable energy resources in Latin America and the Caribbean. Two years after Bonn”**

17:45 Joergdieter Anhalt (Brazil)

*IDER, Instituto de Desenvolvimento Sustentável e Energias Renováveis, Fortaleza)*

**“Dissemination of efficient cook stoves in the Northeast of Brazil”**



## 18.00 Discussion

**8:30 Keynote Speech** **Franz Alt** (Germany)

*TV journalist, bestseller author*  
**“Renewable energies for a better world”**

**9:00 Wind Power**

Chairman: **Ulrich von Eitzen** (Netherlands), *Greenpeace International*

9:00 Everaldo Feitosa (Brazil)

*Vice-President of the World Wind Association, Director of the Brazilian Wind Energy Centre*  
**“Development of wind power”**

9:15 Ciro Ruiz Filho (Brasil)

*Wobben Windpower Ltd*  
**“Implementation of wind power in the energy system of different countries”**

9:30 Leonardo Marotta Gardino (Brazil)

*Brazilian Electricity Regulatory Agency - ANEEL*  
**“Sustainability of the wind energy in Brazil”**

9:45 Mohammad Widyan (Jordanian)

*University of Technology Berlin*  
**“NdFeB magnets in flux concentration arrangement for novel low-speed generators for wind energy systems”**

10:00 Arnaldo Coutinho Costa (Brazil)

*Eletrovento L.A.*  
**“Supplying electric power to scattered and isolated consumers with small size wind turbines”**

**10:15 Coffee break**

**10:40 Biomass & Biofuels**

10:40 João Noberto Noschang Neto (Brasil)

*Research Center of the Petrobras - CENPES*  
**“The state of the Brazilian biodiesel and ethanol program”**

10:55 Juan Carlos Torrico (Germany)

*University of Bonn*  
**“Agriculture as a producer and consumer of energy case study of farming systems in RJ-Brazil”**

11:10 Julia Hansson (Sweden)

*Chalmers University of Technology*  
**“Bioenergy Expansion in the EU – cost-effective climate change mitigation, employment creation and reduced dependency of imported fuel”**

11:25 Maria Grahn (Sweden)

*Chalmers University of Technology*  
**“Biomass for heat or as transportation fuel? A comparison between two model based studies”**

11:40 Dusan Holoubek (Slovakia)

*Technical University of Kosice*  
**“Hot-gas cleaning from biomass gasification”**

11:55 Wathanyu Amatayakul (Sweden)

*Chalmers University of Technology*

**“Fuel ethanol program in Thailand: supply challenges, impact and implications for a program-based CDM”**

12:10 Fernanda Cristina Vianna (Brazil)  
*University of São Paulo - USP*

**“Eco-efficiency analysis: environmental-economic assessment of biodiesel and petrodiesel”**

**12:45 Lunch**

14:00 Osvaldo Stella Martins (Brasil)  
*University of São Paulo - USP*

**“The use of sewage biogas as a renewable source of energy”**

14:15 Paulo Patrício da Silva (Brazil)  
*Federal University of Mato Grosso do Sul - UFMS*

**“Advantages, incentives and obstacles for electric energy cogeneration from sugarcane bagasse in the state of Mato Grosso do Sul”**

14:30 Osvaldo Stella Martins (Brazil)  
*University of São Paulo - USP*

**“Electricity generation for isolated communities in Amazon region using national technology for biomass gasification systems – Gaseibras Project”**

14:45 José N. Carranca (Brazil)  
*MANB&W do Brasil*

**“Diesel eco-power from refined biofuels”**

15:00 Osvaldo Stella Martins (Brazil)  
*University of São Paulo - USP*

**“Energy generation with landfill biogas”**

15:15 Armando Tavares (Brazil)  
*State University of Rio de Janeiro - UERJ*

**“Waste plasma treatment and renewable energy”**

**15:30 Coffee break**

**16:00 Panel discussion Biofuels – opportunities and risks**

Political debate »biofuels« organized by the Heinrich Böll Foundation with experts invited by Heinrich-Böll-Foundation.

Biofuels – especially sugar cane alcohol and biodiesel – are an alternative for cleaner energy and able to generate income for the rural sector. Brazil is already the worldwide leading producer of alcohol. A significant part of this production is cultivated in a monoculture regime which has resulted in several environmental and social problems. The panel will discuss the different and polemical aspects of biofuels in Brazil.

**Introduction:**

**Thomas Fatheuer** – *Heinrich-Böll-Foundation*

**Key-note speakers:**

**Alexandre Betinardi Strapasson** – *General Coordinator of the “Alcohol and Sugar” Department of the Brazilian Ministry of Agriculture*

**Lucia Ortiz** – *Coordinator of the working group on energy of the Brazilian NGO Forum*



**Ingo Melchers** – *gtz Brazil*

**18:00 Final Session:** *Results, Declaration*



## 9.00 Workshop “Silicon” CRESESB

Chairman: **Hamilton Moss**

*CRESESB - Brazilian Solar and Wind Energy Reference Center, Rio de Janeiro Brazil*

“Solar Silicon production for Export from Brazil”

### **Objective:**

The objective of the workshop is to discuss the minimum requirements for processing silicon to get functioning photovoltaic cells. Brazil is one of the largest producers and exporters of metallurgic silicon worldwide and is considering to start an inexpensive silicon production suitable for solar cells. A cooperation of partners from other countries would be desirable for all sides.

1. **Brazil - a major supplier of metallurgical Silicon** (Representative of Silicon Production Company or Dr. Hamilton Moss)
2. **Actual market situation for solar silicon** (Nils Waterstrat, Q-cells AG)
3. **Industry requirements for solar silicon** (Dr. Volker Hofmann, Q-cells AG)
4. **Processing of Silicon - from metallurgical to solar grade silicon** (Dr. Volker Hofmann, Q-cells AG)

### **Target group:**

The workshop addresses managers and technicians of utilities, representatives of governmental and non governmental organizations involved in the development of Silicon production in Brazil and the solar silicon industry.

### **Participants:**

Adriano Moehleck– PUC-RGS, Brazil  
Antônia Sônia Diniz – CEMIG, Brazil  
Dr. Hamilton Moss, CRESESB, Brazil  
Nils Waterstrat, Q-cells AG, Germany  
Dr. Volker Hofmann, Q-cells AG, Germany

---

### **12:45 Lunch**

### **14:00 Education, Capacity Building**

Chairman: Representative of InWEnt (Germany/Brazil)

14:00 Marco Antônio Galdino (Brazil)

*Research Center of the Electric Utilities - CEPEL*

**“Implementation of the new information center of CRESESB”**

14.15 Osiris Ashton Vital (Brazil)

*University of Salvador - UNIFACS*

**“The solar stove as a tool in ambiental education”**

14:30 Augustin Woelz (Brazil)

*Sociedade do Sol, São Paulo*

**“Course on production and installation of low-cost solar heaters”**

14:45 Maria Roos (Germany)

*LIFE e.V. Ecotechnical Trainingcenter for Women, Berlin*

**“Integration of sustainable energy into vocational training in ecotechniques ”**

### **15:00 Coffee break**

---

### 15:15 Solar Thermal Energy Systems

15:15 Osíris Ashton Vital (Brazil)

*University of Salvador - UNIFACS*

**“Impacts of the energy industry regulation on the appropriation of solar thermal energy by the low income population in Brazil”**

15:30 Délcio Rodrigues (Brazil)

*Institute Vitae Civilis*

**“Brazilian solar cities initiatives”**

15:45 Osíris Ashton Vital (Brazil)

*University of Salvador - UNIFACS*

**“Solar energy for cooking: an innovation of easy diffusion and implementation social technology on the Brazilian northeast communities?”**

16:00 José Guimarães Carvalho Neto (Brazil)

*Institute of Research & Technology at the University of Tiradentes – ITP-UNIT*

**“Proposal of Study for Calculation of Efficiency and Cooking Power of the Box Type Solar Cooker: Analogy with Heat Exchangers”**

16:15 Gerhard Valentin (Germany)

*Valentin Energiesoftware GmbH*

**“SOLCAMP - Campaign for Increasing Use of Solar Thermal Systems at Camping”**

16:30 Luis E. Vidriales (México)

*Universidad Nacional Autónoma de México*

**“Direct steam generation in parabolic troughs: first results for achieving soil pasteurization”**

16:45 Ruberval Baldini (Brazil)

*Director of Abeama – Brazilian Association of renewable energies and environment*

**“Economical advantages of the use of thermal solar energy in industry”**

### 17:00 Solar Photovoltaic Energy Systems

Chairman: **Stefan Krauter**, RIO 6, Riosolar Ltda, Brazil

17:00 Ricardo Ruether (Brazil)

*Federal University of Santa Catarina - UFSC*

**“Solar Airports”**

17:15 Hélios Leães Hey (Brazil)

*Federal University of Santa Maria*

**“A stand-alone photovoltaic system based on DC-DC converters in a multi-string configuration”**

17:30 Alex Freundlich (USA)

*University of Houston*

**“Planetary material reserve issues for Terawatt level deployment of photovoltaics”**

17:45 Angele Reinders (The Netherlands)

*University of Twente*

**“Industrial Design Engineering of Product Integrated PV-Systems”**

18:00 Final Session: Results, Declaration



World Climate & Energy Event

**All talks and discussions are translated simultaneously from English to Portuguese and vice versa – headphones are available at the entrance of the auditory.**

### **Event location**

Rio Othon Palace Hotel  
Av. Atlântica, 3264 – Copacabana, Rio de Janeiro - RJ  
Tel: +55 -21- 2525-1550,  
Fax: +55 -21- 2106-1651  
<http://www.othonhotels.com/H00266/index.asp>

### **RIO 6 – LAREF 2006 – Organization Office**

Rio Solar Ltda, Av. Rio Branco, 25-18° andar  
20093-900, Rio de Janeiro – RJ, Brazil  
Phone: ++55 21 2223 2681, ++55 21 2211 5026  
Fax: ++55 21 2211 5019  
E-mail: [info@rio6.com](mailto:info@rio6.com)  
<http://www.rio6.com>,

A handwritten signature in black ink that reads "Stef Krauter".

Prof. Dr.-Ing. Stefan C.W. Krauter  
General Chairman of RIO 6