

Seminars on solar thermal power plants (CSP) – within the scope of the TREE project - Transfer Renewable Energy & Efficiency, Johannesburg, 18 – 20 March 2009

1. Aim of the TREE project

TREE stands for **T**ransfer **R**enewable **E**nergy & **E**fficiency. The aim of the TREE project is to bring about transfer of know-how in renewable energy (RE), energy efficiency (EE) and climate protection for decision makers and engineers from developing and emerging countries. The Renewables Academy (RENAC) has conceived the project and is realizing the various components in collaboration with numerous partners from industry, project management and trade associations. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) is promoting TREE under the Climate Protection Initiative of the German Federal Government.

To promote capacity building, TREE is offering seminars in Berlin and in the partner countries, together with - as follow-up - distance learning and individual advice. TREE will facilitate the recognition of the potential for RE and EE and the associated development of strategies for the partner countries, and also pass on practical expertise for the design and installation of solar technology. These measures will create a basis for CO₂ reduction, greater independence from fossil fuels, the development of new industry branches and a security of energy supply.

2. Seminars on solar thermal power plants (CSP) and target groups

An important part of the TREE project are five seminars on solar thermal power plants (Concentrating Solar Power - CSP), which will be undertaken in the TREE partner countries of South Africa, Namibia, Chile, Peru and Jordan. In **South Africa** RENAC conducts the seminar in cooperation with the Sustainable Energy Society South Africa (SESSA). A consortium of lecturers will hold the three-day seminar, consisting of representatives of the Fraunhofer Institute for Solar Energy Systems ISE and Lahmeyer International. **The aim** of the CSP seminars is to provide the core information needed in the target countries for the implementation of CSP, and to formulate concrete plans of action for creating and implementing the needed policies and conditions.

The seminars are divided into 2 parts. For policy makers, at the level of divisional head and above, who work for ministries, other subordinate authorities, project developers, operators and financiers, a one-day compact seminar will be offered. In the course of this, an overview of the technologies for solar thermal power, necessary policies and conditions, project costs and economics will be presented. The aim of the compact seminars is to present concrete and feasible possibilities, founded on the material and the discussion.

After the compact seminar a two-day in-depth seminar will also be held for involved parties at a CSP project in that locality. The target group for this seminar are employees - particularly engineers – of the institutions responsible for the approval, planning, implementation, integration (into the electricity grid or, for water utilities, with desalination plants), financing and operation of CSP power plants.

3. The Technology: Solar thermal power plants

Solar thermal power plants are large-scale high-tech installations, which use the sun's energy to generate electricity. Our seminar will focus on the plants that utilize the solar energy by concentrating the direct irradiation for electricity production: Concentrating Solar Power (CSP). These include parabolic-trough, fresnel, tower, and dish-sterling systems. All these systems have one thing in common - that solar irradiation is concentrated and converted into thermal energy. By this means a conventional gas or steam turbine, or a stirling engine is driven to generate electricity.

Solar thermal power plants are especially economic in the sunbelt region of the earth. Potentially this technology could cover many times the global power demand; just one percent of the area of the Sahara would theoretically be adequate to cover the world's entire electricity needs (source: Solarserver).

4. Seminar dates for the 5 target countries

South Africa – Johannesburg: 18 – 20 March 2009

Namibia – Windhoek: 23 – 25 March 2009

Chile – Santiago de Chile: 22 – 24 April 2009

Peru – Lima: 27 – 29 April 2009

Jordan – Amman: 11 – 13 May 2009

5. Contents

The compact seminar for decision makers covers the following material:

- Regional irradiation potential
- Solar thermal power technologies for utilizing this potential
- Benefits and challenges of solar thermal power plants
- Costs, economics and cost trends
- Political conditions, experiences with feed-in legislation
- Possibilities for electricity associations and international electricity trading
- Global experiences with solar thermal power plants
- Solar thermal power plants and air conditioning
- Solar thermal power plants and desalination
- Typical project life-cycles and schedules
- Examples of business models and finance
- Effort for operation and maintenance
- Risk Assessment
- Environmental considerations
- Barriers and limitations in the application of the technologies
- Grid-network integration

The in-depth seminars for engineers and financiers, cover the following material

- Theory of operation, different types of construction, solar-/hybrid operation, market maturity, market overview, as well as the advantages and disadvantages of each of the individual power plant technologies (parabolic trough, fresnel, tower and dish-stirling plants)
- Storage technologies for each type of system technology
- Cooling technologies
- Applications
- Siting criteria and the search for a site in practice
- Determining the irradiation potential
- Standards (measurement technology, analysis of satellite data, global player - EPC, OEM, planner)
- Modeling and design
- Project management
- Effort needed for operation and maintenance
- Examples of business models and finance
- Risk assessment
- Planning and construction
- Economic aspects (costs and cost trends, yields, economics, business calculation methods, risk assessment, examples of business models and financing)

6. Registering to participate in a CSP seminar

You are cordially invited to register to take part in the CSP seminar in **Johannesburg/South Africa**. Please fill out the attached questionnaire and send it to:

Southern African-German Chamber of Commerce and Industry

Ms. Katja Rimmell

Phone: 011 4862775

P.O. Box 87078

Fax: 011 4863625

HOUGHTON 2041

SOUTH AFRICA

Email: Krimmell@germanchamber.co.za

Deadline for handing in the application: Friday, 27 February 2009

Following reviewing your registration documents, we will contact you as quickly as possible.

7. The Renewables Academy – RENAC

The Renewables Academy (RENAC) offers education and training for decision makers, engineers, investors, lawyers and developers in the areas of renewable energy and energy efficiency. Its goal is to disseminate the outstanding expertise existing in Germany in the use of renewable energy and efficient energy, both nationally and internationally. Through its course offerings RENAC seeks to contribute to bringing about sustainable energy supplies. RENAC brings together expertise in the field of international know-how transfer and works with a wide network of institutions and companies in the fields of RE and EE.

8. The Sustainable Energy Society South Africa

The Sustainable Energy Society of Southern Africa or SESSA, is dedicated to the use of renewable energy and energy efficiency including all solar-based energies such as photovoltaics, thermal heating and cooling, wind, biomass and hydro, to name a few. Other utilization possibilities of this principle source of energy are in passive building design and energy efficiency.

The inter-disciplinary nature of SESSA attracts the membership of industry, scientists, researchers, developers and the general public – the only qualification is a keen interest in renewable energy and its utilization to ensure a sustainable energy future. SESSA was founded in 1974 and is one of 50 National Sections of the International Solar Energy Society (ISES). ISES is regarded as the premier body in solar energy with members in over 100 countries. SESSA is the duly appointed African office of ISES.

Further Information

For further information please contact the Renewables Academy AG:

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Seminar Location

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SOUTH AFRICA