

# Sustainable Energy News

No. 4 March 1994

ISSN 0908-4134

Newsletter for the  
International Network  
for Sustainable Energy  
- INforSE



## Sustainable Energy News

Published by:

INforSE

P.O. Box 2059,

DK - 1013 Copenhagen K

in cooperation with

**OVE - The Danish Organization  
for Renewable Energy**

Willemoesgade 14

DK-2100 København Ø

Ph: +45-31429091, fax: -31429095

E-mail: ove@pns.apc.org

**Editors:**

Ann Vikkelsø, Gunnar Olesen,

Judit Szoleczky, OVE

Rene Karottki, Forum for Energy  
and Development

**Technical Editor:**

Lars Yde,

Folkecenter for Renewable Energy

P.O.Box 208, DK-7760 Hurup Thy

Ph: +45-97956600, Fax:-97956565

**Drawings:** Katia Ibanez

**Deadline for next issue:** 25.5.94

**Next issue:** June 1994

The newsletter is quarterly. Contributions are welcomed. Feel free to use the information you find in Sustainable Energy News.

**Annual subscription rate:** US\$ 15  
Sustainable Energy News will be distributed free of charge to NGOs as long as possible.

**Supported by:** Forum for Energy and Development.

### INforSE

International Network for Sustainable Energy is a worldwide NGO network formed at Global Forum in Rio, June 1992.

#### Regional Contacts:

Stephen Karekezi, FWD, Kenya

Youba Sokona, ENDA, Senegal

Raymond Myles, AFPRO, India

Benjamin Gertes, Philippines

Emil Bedi, FAE - SZOPK, Slovakia

Gunnar Olesen, OVE, Denmark

Martin Prieto, REDES, Uruguay

Emilio Rovere, IED, Brazil

Nancy Hirsh, ECC, USA

## Contents

### Editorial: Energy and Jobs

**Against Underdevelopment in Latin America** ..... 3  
by Emilio L. la Rovere, IED and COPPE/UFRJ, Rio de Janeiro, Brazil

**GREECA** ..... 3

**Regional News - Africa** ..... 4

**Regional News - Asia** ..... 5

### Sustainable Energy

**Progressing into Development Projects** ..... 6  
by Erik Graff, CARE Danmark

**Regional News - Europe** ..... 7

**Regional News - Latin America** ..... 8

**Regional News - North America** ..... 9

**World Bank Energy Strategy & Practice** ..... 10  
by Gunnar Boye Olesen, OVE

**Mixed Governmental Support for Energy Conservation** . 12

**Publications** ..... 12

**Electricity Production Technology for Rural Development** 13  
by Josef Viglasky, Technical University in Zvolen, Slovakia

**Events** ..... 14

**Sustainable Energy Contacts - update** ..... 15

**Climate Negotiations - The Temperature is Rising** ..... 16  
by René Karottki and Rasmus Gade, Forum for Energy and Development

**Front page:** Pacific Ocean, Coast of Peru.  
Niels Nyholm/BioFoto.

## Join the INforSE Network !

INforSE is open to membership for independent organizations. All interested organizations will be granted associate membership and will receive this newsletter.

Core members of INforSE are organizations that are approved by their respective INforSE region and that will support in their words and actions the energy strategy behind INforSE, *Sustainable Energy Development - Towards a World Strategy*. Core members have voting rights at regional meetings. Procedures for membership are decided on regional level.

Do not hesitate to contact INforSE regarding membership for your organization.

# Energy and Jobs

## Against Underdevelopment in Latin America

Small scale renewable energy projects have an important potential to foster an environmentally sound economic and social development of Latin American counties, specially in rural areas. The availability of energy for productive activities can help to create jobs and support local economic growth leading to an improvement of overall quality of life. This is badly needed in the country and in urban surroundings, where low income populations are concentrated. Millions of people fall under this category due to the skew income distribution pattern throughout the Latin American continent. Their situation further deteriorated during the eighties (*a lost decade* in the region) due to the economic recession. The widening extension of famine and malnutrition has become a source of increasing concern.

In Brazil, non governmental organizations started a nation-wide campaign of solidarity with starving people. This spread to encompass a large number of initiatives through creation of local committees in neighbourhoods and institutions including state-owned and private companies. Besides trying to provide some immediate relief to the poor through food donations, the campaign is also aimed to handle the roots of the problem setting the goal of increasing employment opportunities. A positive synergy between this campaign and the launching of a Sustainable Energy Strategy could then be explored. It will demand a deeper involve-

ment of NGOs with actual demonstration of appropriate energy technologies in the field, which is still lacking in Brazil.

Of course the successful launching of a Sustainable Energy Strategy in Latin America will still largely depend on the support obtained from governmental energy policies. The present situation in this respect has considerably worsened since the seventies, when important efforts were directed towards the technological development of new and renewable energy sources. Due to the dropping of oil prices and to the financial difficulties faced by all governments in the region, renewable energy research and development budgets were squeezed. In contrast, nuclear power is still actively supported in some countries of the Latin American continent. (See news in the last issue of SEN about a new nuclear power plant in Brazil).

These issues will be addressed in the Latin American Regional Meeting scheduled to take place next April in Brasilia. It will be held simultaneously with the IV FLEA/ELAN in order to gather the NGOs already involved in the anti-nuclear movement. An expected outcome of the meeting is a Working Plan to support a Sustainable Energy Strategy in Latin America linked with a Campaign for Employment Generation, in the framework of INforSE activities.

*Emilio L. La Rovere*

IED and COPPE/UFRJ, Rio de Janeiro, Brazil

## GREECA

*Global Renewable Energy and Ecology Centres for Action* held its first meeting on March 7-12, 1994 at Folkecenter for Renewable Energy (FC) in Denmark. 5 organizations from five different countries - China, India, Cuba, Tanzania and Denmark - formed the consortium GREECA. Preben Maegaard from FC was elected as chairman for 3 years.

GREECA activities will include: exchange of experts, practical technology transfer, training and promotion.

*T. Jacobsen, L.L. Kiriama, Zhao Yizhang, E. Madruga, J. A. Guerra, FC practitioner, T.K. Moulik, P. Maegaard, R. Myles at the first meeting of GREECA*



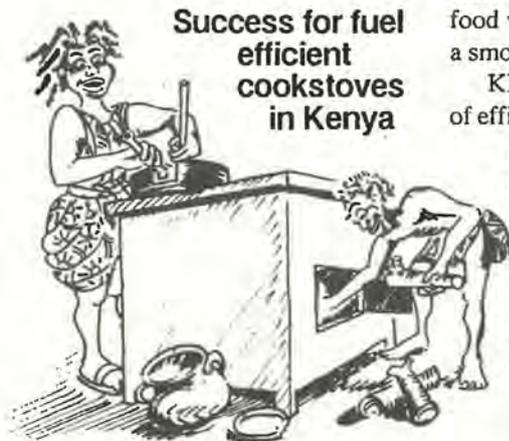
# Regional News - Africa

## Regional INforSE meeting in Eastern Africa, March 22

The first meeting of INforSE Eastern Africa will be held at March 22, 1994 in Nairobi, Kenya, following the African Energy Initiative Seminar. The Agenda of the INforSE meeting will include:

- discussion of the NGO strategy *Sustainable Energy Development - Towards a World Strategy*,
- proposed national activities as compilation of a directory of NGOs involved in sustainable energy projects and a directory of energy efficiency and renewable energy technology distributors and manufacturers,
- a proposal for establishment of an *Association of Energy Efficient and Renewable Energy Technology Distributors* in Eastern and Southern Africa,
- national level workshops that enhance information exchange and share experiences on sustainable energy activities,
- Campaign on Sustainable Energy and Social Development.

Contact: FWD, att. Mumbua Munywoki & Stephen Karekezi, P.O.Box 30979, Nairobi, Kenya, ph: +254-2-566032, fax: +254-2-561464.



**Success for fuel efficient cookstoves in Kenya**

The number of energy efficient wood and charcoal stoves in use in Eastern Africa is rapidly increasing to decrease the consumption of woodfuel and to increase the standard of living. A well known success is the charcoal stove *Kenya Ceramic Jiko - KCJ* (presented in *Soft Energy Worldwide*, May 1992), which is now used in millions of

homes in Eastern Africa. The introduction of *Kuni Mbili Jiko* (Swahili for stove using two pieces of firewood) from 1984 was another revolutionary idea. The *Kuni Mbili* design is a bridge between the conventional three-stone fire and the KCJ. It is easy to light, portable, less smoky, and consumes less firewood (saves 30%). It will easily burn all available biomass including maize cobs and stalks, twigs and cow dung.

Beside households, kitchens at institutions have a large potential for increased efficiency in their use of woodfuel. In 1980 woodfuel accounted for 84% of total energy consumed in commercial and public institutions in Kenya, and the amount is growing. One of the leading NGOs in Kenya, KENGO (Kenya Energy and Environmental NGOs), has developed a large, efficient stove for institutional use, *KENGO Institutional Jiko* (KIJ). If such a stove is introduced in 550 schools, wood consumption equivalent to about 4500 acres of forest could be saved annually. The response to the KIJ is very encouraging. Now institutions all over Kenya have these stoves and the demand is increasing. Well over 3000 institutional stoves have been installed already. The KIJ is a reliable and fast cooking stove that can cater for 50- 100 people. It can keep food warm for over 8 hours and gives a smoke-free, cool kitchen.

KENGO is developing new types of efficient stoves and other renewable energy technologies. More information: KENGO, P.O.Box 48197, Nairobi, Kenya, ph: +254-2-749747/748281.

Source: *KENGO makes Cooking Easier*, Alice Wafula, *Environment Times*, November 1993, Nairobi, Kenya.

## More than 1000 solar homes in Senegal

In Senegal the majority of the population lives in the country and has little scope of being connected to a central grid in a foreseeable future. This is the background for the dissemination of solar home systems by the *Projet Senegalo-Allemand d'Énergie Solaire*. The project has disseminated more than 1000 solar home systems in Senegal, mainly for lighting. Based on previous experience the project has developed a solar home system that is appropriate for rural households in Senegal.

The typical solar home system consists of a 50W solar panel, a battery, a control system, 4 incandescent 10W lamps and an electric outlet for 6/12 Volt. Incandescent lamps were chosen for the project instead of fluorescent lamps that gives considerable more light; but they are 10 times as expensive as incandescent lamps and not easily available. The 4 lamps can be switched on for 4 hours each, after days with normal sunlight; this is usually sufficient. The number of lamps was chosen to correspond to the number of wives (4) that one man can have according to Islam, the major religion in Senegal.



Local associations are involved in the introduction of the solar home systems, and the systems are usually financed by revolving fund, managed by the associations. They also have a role in the necessary maintenance of the solar home systems, and in maintaining information about the systems and their use. In each association there are two or three technicians with sufficient skills and with access to spare parts.

The Senegalese state has exempted photovoltaic equipment from VAT and import duties. This is done because of the importance of solar home systems and other photovoltaic applications in increasing the living conditions for the rural population.

Source: *Projet Senegalo-Allemand d'Énergie Solaire. Le Système Photovoltaic Familial*. Masse Lo and others, Dakar 1993. Report is available from ENDA, B.P.3370 Dakar, Senegal.

# Regional News - Asia

## Regional Workshop and INforSE meeting in New Delhi, May 18-21, 1994

The start-up of INforSE activities in the Central Asia Region will be a 4-days workshop to develop a strategy for promoting rural energy for socio-economic development through NGOs. It will be combined with the first INforSE meeting in this region. The workshop and meeting is organized by AFPRO (Action for Food Production). Limited support for travel expenses will be available for INforSE organizations from the region.

Further information: Raymond Myles, AFPRO, 25/1A, Institutional Area, Pankha Road, "D" Block Janakpuri, New Delhi - 220058, ph: +91-11-5500343, telex 31-65899 AFPRO IN.

## Regional INforSE workshop in Hanoi

The previous announced INforSE workshop in Hanoi, Vietnam is now set to April 25-28, 1994. It will be the founding meeting of INforSE Asia-Pacific Region. The objectives of the workshop are:

- to assess status and future directions of sustainable energy development among NGOs,
- to diagnose problems and constraints as well as identify opportunities and potentials for promoting sustainable energy development both at the national and grass-roots level,
- to formulate strategies for job/employment creation by implementing sustainable energy,
- to enhance cooperation, linkages and sharing of expertise and knowledge on sustainable energy among countries in the region.

The expected outputs of the workshop are:

- a draft of a common framework for sustainable energy development appropriate for the Asia-Pacific region,
- a list of regional and country strategies for promoting job/employment creation through sustainable energy development,
- a catalogue of NGOs and other organizations concerned with sus-

tainable energy development in the Asia-Pacific region.

The venue of the workshop is the National Info- & Documentation Center for Science & Technology, 24 Ly Thuong Kiet, Hanoi, Vietnam (contact Mr. Nguyen Van Khanh). Parallel with the workshop there will be an exhibition with sustainable energy products.

Limited support for travel expenses will be available for INforSE organizations from the region.

Further information by: Benjamin Gertes, PCATT, 224D Silang Street, Batangas City, Philippines 4200, ph: +63-43-7231155.

## Local INforSE meetings at the Philippines

A series of workshops on renewable energy and sustainable energy development was held in Manila and Batangas City during March 1-5, 1994. The workshops were attended by representatives from a number of Philippine INforSE organizations. Parts of the workshops were used to discuss INforSE and to make preparations for the regional workshop and INforSE meeting in April.

Further information: Benjamin Gertes (address above)

## Sustainable Energy Networking in China

Until recently INforSE has not had any formal contact to China with its 1/5 of the world population and a remarkable development of renewable energy. The lack of contacts is mainly due to the structure in China, where sustainable energy solutions are not driven by NGOs in the way that can be seen in many other countries. Currently no Chinese organization has supported the sustainable energy strategy that INforSE is based upon.

This situation is now changing. The Asian Pacific coordinator Benjamin Gertes has visited a number of Chinese research and development centers, where he found a widespread interest in more cooperation with INforSE. A large number of contacts were made and professor Qi Wenhui was appointed as contact person.



*Chinese three-cascade small hydro power station. China has 12,400 MW installed capacity of Minihydro Power Stations.*

Besides Qi Wenhui, George Chan is working as Chinese contact person for INforSE. He is widely known for his work with biogas and integrated farming systems.

### Contact persons in China:

Qi Wenhui  
CISNAR (Committee for Integrated Survey of Natural Resources)  
11 Nanzhanguan Nanli  
Beijing 10026, China  
ph: +86-1-491 7296  
fax: +86-1-491 4230

George L. Chan  
c/o Chan Sew Sen  
P.O.Box 98442  
Hong Kong  
fax: c/o prof. Zhong Gongfu +86-20-776 5006

## Narmada Dam - broken promises

Around New Year the news about the Narmada Dam in India looked promising. On December 31, the Narmada Control Authority was forced to announce that it was not going to close the sluice gates at the foot of the dam, because the Ministry of Environment and Forests and the Ministry of Social

# Sustainable Energy Progressing into Development Projects

by Erik Graff, CARE Denmark

As follow up to the Rio Conference, Danish environment, energy and development organizations want to add an energy component to their developing projects. They have joined the Forum for Energy and Development.

In November 1993, CARE Denmark has carried out the first Forum supported study of the energy consumption and the possibilities of adding fuel savings and sustainable energy solutions to an on-going project in the outlying Mustang district in Nepal.

As an example the study has established time consumption for fuel wood collection, wood consumption, consumer patterns and habits etc. in the project area. The time consumption for fuel wood collection is today 8-16 hours each time per household, dependent on distance to the forest. 20 years ago the time consumption was only about 25% of this. As an average each household collects about 40 kg of wood each time about 130 times a year. Therefore a reduced fuel wood consumption will also cause that the time

saved can be used for more productive purposes.

The study proves that it is possible to reduce the wood consumption by fuel saving initiatives and by utilizing sustainable energy sources in the area such as sun, water and wind. The suggestions include among others the following low- technological solutions: Improved clay stoves supplied with smoke pipes, pressure cookers, hay-boxes and solar box cookers, tightening of houses and putting in window glass, and passive solar heating. Furthermore solar water heaters for public bathing houses in the villages.

The results of the study is now available in a draft report containing suggestions at 4 levels of ambition together with calculations of costs and benefits of the objects at each level.

Devastation of the environment and following deterioration of the resource basis of the populations in developing countries is a global problem, which cannot be solved solely by agricultural and tree-planting activities. Therefore energy savings and utilization of sustainable energy must be subjects of future activities for the development agencies on line with other activities.



*Water mill,  
a so-called Ghatta.*

*Some 25,000 of these are operating  
in the Nepalese hills and mountains.*

## *Regional News - Asia, continued*

Welfare stated that the conditions on resettlement and the environment had not been fulfilled. Nevertheless work on plugging sluices at the foot of the half-completed dam began on Wednesday, February 23. The Indian Government had assured the World Bank and its shareholder governments that the sluices would not be shut before June 1994. No warning was given either to the hundreds of families upstream whose farmlands will be permanently flooded, nor to the hundreds of thousands downstream whose drinking water supplies will be cut off

for weeks while the river backs up to the height of the next set of sluices.

Further information: Lori Udall, International Rivers Network, Washington DC. Phone: +1-202-466 8191. Fax: +1-202-466 8189.

## **Peoples' Forum 2001 in Japan**

In November 1993, Peoples' Forum 2001, Japan was established to follow up the Agenda agreed at Global Forum'92 in Rio. They held the first symposium in February 1994 supported by many NGOs. The DERG (Decentralized Energy Research

Group) took initiative to a sub-conference on energy and set up an international information service window. (Dai Nakajima, DERG)

## **Support for PV in Japan**

The Japanese Ministry of International Trade and Industry (MITI) will now give a subsidy of 50% for solar cells on individual houses. The maximum subsidy will be 2.7 million yen, allowing 50% subsidy for a 3 kW PV plant. It is quite unusual that subsidies from Japanese national budget is paid directly to consumers as they will be in this case.

# Regional News - Europe

## INforSE Europe Meeting

The coming regional meeting in Europe will be July 9, 1994 at Energie- und Umweltzentrum am Deister near Hannover in Germany. On the agenda will be a new action plan for INforSE Europe, discussions about future common actions by sustainable energy NGOs in Eastern and Western Europe and an evaluation of the past year. An important point will be a discussion of the European part of the INforSE campaign.

The INforSE meeting will take place immediately after the European Sustainable Energy NGO Seminar, July 4-8, also at Energie- und Umweltzentrum am Deister.

Further information: OVE, att. Gunnar Boye Olesen, Willemoesgade 14, 2100 København Ø, ph: +45-3142 9091, fax: +45-3142 9095.

## INforSE Europe Campaign

The European part of the INforSE campaign will focus on energy and employment. Basically, the first steps of transition to a sustainable energy system will create employment and economic activity that can be financed by reduced use of fossil fuels, besides it has environmental benefits.

In Europe, the new campaign for a job-creating sustainable energy development will set focus on activities that can be started with public money made available from reduced social security and unemployment expenditures, and multiplied by private investments. With the right selection of measures, such a strategy can reduce unemployment without increases in the public expenses simply by a smaller change in public expenses and a larger activation of private capital. These measures can include raising the efficiency in domestic energy use (improving of homes, better energy control systems), utilization of solar heat in active and passive systems, energy efficiency improvements in commercial and industrial sector, a shift to more efficient transport systems, as well as the creation of whole new business sectors for sustainable development.

The campaign will be coordinated with plans on environment and em-

ployment from WWF, Friends of the Earth, Climate Action Network, BUND, etc. It will produce inputs to the global INforSE campaign, presented in last issue of Sustainable Energy News.

For Western Europe an important result of these joint efforts will be an environmental employment plan that can be seen as an alternative to the EU-Commission Whitebook on employment from December 1993 - *Delor's Plan*.

For Eastern Europe the campaign will focus on sustainable energy solutions for economies in transition, highlighting successful experiences in the region.

The campaign will be presented at the BUND environmental fair in Freiburg, Germany in June, and at different occasions in the autumn of 1994.

All European INforSE organizations have received a more detailed description of the campaign. For more information and cooperation on the campaign, please contact INforSE Europe, att. Gunnar Olesen, Willemoesgade 14, 2100 Copenhagen Ø, Denmark, ph: +45- 3142 9091, fax: +45-3142 9095 or c/o SZOPK-FAE, att. Emil Bedi, Gorkeho 6, 81101 Bratislava, Slovakia, ph/fax: +42-7-36 46 65.

## US invests in Temelin NPP

Last year the Czech government made a contract with the American company Westinghouse about completion of Temelin Nuclear Power Plant. On January 27 the American Export/Import Bank gave preliminary approval for the needed credit guarantee, and they have sent an application for the credit guarantee to finance Temelin to the US congress. The US congress will probably take a decision during March '94.

The construction of Temelin NPP was started during the communist era. Temelin will be a hybrid of Soviet and US design that is completely untested, and will have a high risk of accident. The power generated from the plant is not needed. There are great possibilities for energy efficiency in the Czech Republic. There is also an unused potential for hydropower as well



as utilization of other renewable energy sources.

All the time there has been a strong local and international opposition to the plans of finishing Temelin, but there has never been any public hearings or discussions about the project in the Czech parliament. European environmental groups have fought the plans of completion for years. Right now the struggle continues, especially in the USA, to stop the dying Western nuclear industry from expanding their activities to Central and Eastern Europe in order to survive. Join the campaign in the US or this summer in the Czech Republic.

More information on Temelin nuclear power plant issue on the e-mail conference: gn.nuclear or energy.nuclear or at Hnutí DUHA, Jakubské nám. 7, 60200 Brno, Czech Republic, ph: +42-5-42210438, fax: +42-5-42210347.

## CADDET Center for Renewable Energy

The IEA's *Center for the Analysis and Dissemination of Demonstrated Energy Technologies* (CADDET) has set up a new unit to focus on renewable energy. The original CADDET is operated by NOVEM in the Netherlands. The CADDET Center for Renewable Energy will be operated by the Energy Technology Support Unit (ETSU) at Harwell in Britain. (Energy..in Demand)

# Regional News - Latin America

## Latin American INforSE meeting in June

The founding meeting of INforSE Latin America is postponed till the last week of June to coincide with the ELAN/FLEA meeting (Latin American Anti Nuclear and Alternative Energy Network). Limited support is available for INforSE member organizations.

Program and further information: IED, att. Emilio Rovere, c/o Universidade Federal do Rio de Janeiro, Bloco C, Sala 211, C.P. 68565, Ilha do Fundao, 21945 Rio de Janeiro - RJ, Brazil, ph: +55-21-2709995/9662, fax: +55-21-290 6626.

## Renewable Energy Campaign in Uruguay

REDES, one of the regional focal points of INforSE and the Uruguayan part of Friends of the Earth, is now planning a renewable energy cam-

*Eco-Comunidad. Ecological Village in Uruguay - coming demonstration center for renewable energy?*

*Photo: Sidsel Kragh.*



paigned for Uruguay. The campaign will be carried through in cooperation with other NGOs including cooperative organizations. Major elements in the campaign will be:

- construction of a permanent exhibition of sustainable energy solutions in the REDES Eco-Comunidad (an ecological village project),
- production of brochures and other publications in order to systematize existing information and new results,
- a test station for solar collectors for water heating at the Uruguayan market.

Information: REDES, att. Martin Prieto, Avenida Millan 4113, Montevideo, Uruguay, ph: +598-2-356265, fax: +598-2-381640, e-mail: rededur@chasque.apc.org

## Windturbines and hydropower in Costa Rica

The Inter-American Development Bank and European Investment Bank will give loans with a total of USD 515 mill. for the power sector in Costa Rica. The loans will fund the construc-

tion of a 177 MW hydropower plant in the Reventazon River basin and a 20 MW wind power project in Tejona near Lake Arenal. The wind turbine park will be the first of its kind in Central America. Other uses of the loan will be network construction and an energy conservation program. Source: Inter-American Development Bank newsletter, Jan-Feb. 1994.

## Hydropower in Venezuela

The Inter-American Development Bank will provide a loan of USD 500 mill., the largest in the Bank's history, to the construction of a 2,160 MW hydro power plant in the eastern Venezuelan state of Guayana on the Caroni river. The project with a total cost of USD 2.13 billion includes financing for 13 projects to minimize adverse environmental effects of the works. The project also supports the government's electrical sector reform program to establish a regulatory framework and a pricing policy to encourage more efficient use of energy resources. Source: Inter-American Development Bank newsletter Jan-Feb. 1994.

*Regional News - Europe, continued*

## Campaign Against Windfarms in Wales

One of the main environmental groups in Wales, The Campaign for the Protection of Rural Wales, reversed its earlier stance and is now opposing all new plans for windfarms. The Campaign is urging a moratorium on new windfarms until substantial results have been achieved through conservation and energy-saving measures. The group feels that the subsidy for renew-

able energy would be more valuable if used for conservation measures. (Energy..in Demand)

## Renewable Energy Share Increased in Germany

The renewable energy share, including hydro, of total German electricity production increased 1% 1990-92 to 4.3% in 1992. Nevertheless the hydropower has a share of 80%, the non-hydro renewables are gaining ground. Electricity production from non-hydro renewables in Germany:

	1990	1992
Solar	0.6 GWh	1.4 GWh
Biomass	220 GWh	295 GWh
Wind	43 GWh	275 GWh
(Energy..in Demand)		

## Biodiesel Plant in Italy

The world's largest biodiesel plant, with a capacity of 80,000 tonnes per year, opened in Livorno, Italy in the end of 1993. It will be supplied by soya, rapeseed and sunflowers. The biodiesel fuel will be sold throughout Europe. (Energy..in Demand)

# Sustainable Energy News - Europe

No. 4 March 1994

Newsletter for the  
International Network for  
Sustainable Energy  
INfor SE - Europe

Editors:  
A Vikkelsø, G Olesen & J Szoleczky



## Walk Across Europe for a Nuclear-Free World 1995

Brussels - Paris - London - Frankfurt - Praha - Wien - Kiev - Chernobyl - Moskva

In 1995 For Mother Earth organises a 5.500 km walk which will visit

- 5 European nuclear weapon states
- the Wien headquarters of the International Atomic Energy Agency
- Chernobyl, the worst human-made accident ever
- numerous civilian & military nuclear facilities and sites

The walk has three demands dealing with the critical nuclear issues of 1995

- The Comprehensive Test Ban Treaty
- The Non-Proliferation Treaty
- The Charter Review of the IAEA

The *Walk across Europe for a Nuclear-Free World 1995* will call attention to the social, environmental and economical consequences of the Atomic Age and give concrete examples of alternatives. The objective of a nuclear-free world will be met not only

through walking but also with an international petition, street theatre, symbolic action and non-violent direct actions. There will be workshops, exhibitions, etc. on renewable energy and energy savings as positive actions showing there exist an alternative to nuclear power.

*The Walk* will start January 12th 1995 in Brussels - the Headquarters of the European Union - and end in Moscow on October 12th 1995, the International Day of Solidarity with Indigenous People. This to highlight the link of Indigenous people and nuclear developments worldwide.

For Mother Earth organised the *Walk across America* in 1992 where an average of 100 people a day walked 5.500 km from New York City to the Nevada Test Site. This was an effort to halt nuclear testing on the land of the Western Shoshone Indians.

### HELP - HELP - HELP

#### Working Groups

FME hopes to set-up working groups by spring in every country they will walk through.

#### Fundraising

financial contributions to realize this grass-roots campaign are needed. Donations are welcome on the international postal account nx 000-1618561-19 For Mother Earth, Gent, Belgium. Ask for our flyer, for merchandising materials, or party a anti-nuke benefit.

#### Registrations

forms for participation are available.

#### Further information:

FOR MOTHER EARTH INTERNATIONAL  
Rosanne Mitchell & Pol D'Huyvetter  
Zilverhof 19, 9000 Gent, Belgium  
Phone +32-9-2333268  
Fax +32-9-2334924  
E-mail: [motherearth@gn.apc.org](mailto:motherearth@gn.apc.org)

# Internal Energy Market on Its Way

by Gunnar Boye Olesen, OVE



In the European Union (EU, former EC) the preparations for the *Internal Energy Market* have started a

new round, with new proposals for directives regulating the electricity and gas sectors in the 12 EU countries. Besides, a proposal for strengthening the Trans-European energy networks has been forwarded, and a proposal for Integrated Resource Planning is apparently on its way.

## Electricity and gas directives

The proposals for directives on electricity and gas were published in the different EU-languages through December and January by the European Commission (former EC-Commission). The Commission hopes to get them approved by the Council of Ministers in May or June, 1994.

Main differences from the previous proposed directives are:

- the network operators can give priority to renewable energy and energy from waste incineration plants of all sizes (in the previous proposal they should do it; but only for suppliers below 25MW).
- third party access is now subject to a negotiation process; but is still possible after negotiation for large industries - industries with higher consumption than 100 GWh electricity per year or 25 mill m<sup>3</sup> natural gas per year - and for distribution companies (in the previous proposal a more general system for third party access was to be established).
- requirements for dividing power companies into production, transmission and distribution companies are weakened.

The proposals do not pay much attention to environment, and the possibilities for including demand side options are unclear or missing. So it is high time for NGOs in EU to try to make the proposals better.

## Trans European Energy Network

Another proposal from the European Commission is a proposal for strengthening the networks for electricity and gas. The proposal is based on the Maastricht Treaty and supports the creation of new networks. The problem of this proposal is that it strengthens the networks and thereby distant supply, which is then favored over demand side options and local resources.

This proposal is now published in all EU languages and will be discussed at the EU Energy Ministers meeting May 25, 1994.

## Integrated Resource Planning

The European Commission is planning a directive on Integrated Resource Planning. The General Directorate on energy (DG 17) has admitted that integrated resource planning is needed in the EU Energy Market, and is preparing a proposal probably to be published late Spring this year.

# Monstrous Renewable Energy Project in Portugal

By Jorge Valadas

The biggest artificial lake of Europe may be located in the South Eastern part of Portugal, in the province of Alentejo within three decades. Several villages and 25,000 hectares of land will be submerged by the water of the Alqueva Dam, on the Guadiana river. The project is still under discussion. It is planned to be the biggest public investment ever made in Portugal. The financing shall come from the *European Development Plan* (EU-funds).

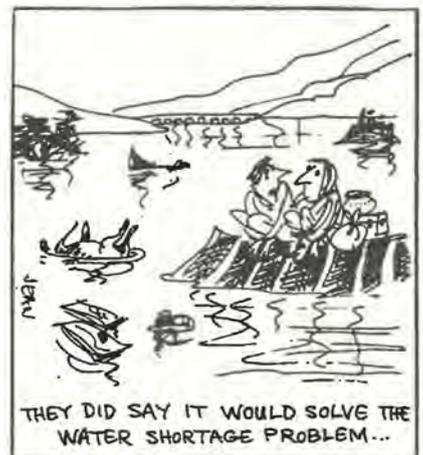
The evaluations of the Alqueva Dam Project do not conclude that it will bring substantial improvements to the weak Portuguese economy. And there is quite a number of doubts concerning its impact on employment, agricultural production and electrical power.

The basic objective of the project is the irrigation of more than 100,000 hectares of agricultural land. For this purpose more than ten dams must be built around the central dam. A large hydropower station will be built in the central dam; but a large part of the electricity from the station will be used to pump water from the central dam to a higher dam, from which it can be distributed to the irrigation channels.

The project has a number of problems. It will displace thousands of people. The Guadiana river, one of the larger Iberian rivers not yet regulated, will have its natural life seriously damaged. The agriculture that is supposed to benefit from the dam is in a severe crisis because of production surpluses in the EU.

Some technicians from the Evora University, Portugal, have underlined

the social and economical absurdity of the project. Ironically, it was also proposed that the project should provide water for irrigation of the huge golf courses which slowly replace the traditional agriculture in the area.  
(text shortened by the editors)



# Ignalina is Still Running

While it is well known that Lithuania has one of the most dangerous nuclear power plants *Ignalina* the many interconnected problems of the Lithuanian energy system are less known outside Lithuania. The Lithuanian Green Movement (LGM) is struggling for the most environmental benign solutions for the country's difficult situation.

## The Energy System

The Lithuanian electricity consumption - 4400 kWh/capita - is similar to the consumption in many Western countries; but the industrial part of the consumption is about 50%, compared to 20-40% for Western countries. The major part of the electricity comes from Ignalina, with two 1500MW RBMK reactors (enlarged Chernobyl-type) that also produces electricity for export to Byelorussia and Latvia. Lithuanian thermal power stations, that can work as cogeneration plants to supply district heating, are only used as a back-up to supplement the power system. When one of the frequent smaller accidents happens at Ignalina, they produce the power needed. They run on heavy fuel oil with high sulphur content. The cheapest solution for reducing the sulphur emissions is to run the power plants on natural gas, but presently even this solution is found too expensive in Lithuania.

In the major towns, heating is provided by district heating systems with heating stations running on heavy fuel oil, as the use of the more efficient cogeneration plants are found too expensive, because of the cheap power from Ignalina.

## Other Possibilities

There is a large potential for energy efficiency in Lithuania. In January '92 the Lithuanian Government adapted a *National Energy Conservation Program*. It should enable overall savings of 20-25% when implemented. So far, the only act the government has made to implement this program is the establishment of a Board for the program implementation.

The renewable energy resources account for more than 10% of the pre-

sent energy consumption, including wood and micro-hydropower. Presently only 3.6% of the energy consumption comes from these resources, including peat. The Ministry of Energy does not support the development of the renewable energy potential, and private initiatives for this are suppressed by the Government and by current legislation (and lack of legislation).

## Ignalina

The two reactors at Ignalina produce 90% of the electricity consumed in Lithuania. The electricity from Ignalina reduces the import of fossil fuels and gives export earnings to Lithuania.

Besides the safety problems, Ignalina has increasing problems with spent radioactive waste that are no longer returned to Russia. The containers with used fuel are stored inside the plant in water pools, and these storages will soon be filled. The Lithuanian government has given the task to find a solution to a German company GNS. This company proposes mobile graphite containers for temporary storage (50 years). The cost of waste handling and purchase of new nuclear fuel will cost hard currency for Lithuania, and will force increased price for electricity from Ignalina. If the cost of the plant's decommissioning is included, the price will increase further.

## Increased use of nuclear?

A few proposals for increased use of nuclear power are worth mentioning:

- The Lithuanian Ministry of Energy, State Energy System, Vattenfall AB (Sweden) and Imatran Voima (Finland) are proposing increased export of electricity from Ignalina to Latvia and Estonia to reduce the use of oil-shale and other high-polluting fossil fuels.
- The Lithuanian Ministry of Energy is cooperating with the company Westinghouse in USA about a proposal for construction of a new 600 MW reactor in Lithuania. A group of Lithuanian specialists are now studying this possibility in USA at the Westinghouse Company.



## Alternative activities

The Lithuanian Green Movement and the group Atgaja have a number of activities for a more environmentally benign future of the Lithuanian energy system. For instance they:

- collect information about all foreign energy and environmental projects in Lithuania,
- run an information center on energy and air pollution in Kaunas,
- make a television program, to make competition between citizens, that have saved energy in their own homes,
- plan renewable energy and energy efficiency demonstration centers in Kaunas and at a farm 50 km from Kaunas.

The Folkecenter for Renewable Energy (Denmark) has an Energy Office in Kaunas. A number of demonstration projects, mainly with Western co-financing, is implementing energy efficiency and renewable energy on a smaller scale in Lithuania.

A large number of such activities including revised electricity pricing and new, democratic energy legislation are all necessary conditions for a transformation from a nuclear to a sustainable energy system in Lithuania.

Source: *Report About Lithuanian Energetic Situation*, Linas Vainius and Saulius Piksrys, Energy and Air Polluting Center, Central Post a/d 156, 3000 Kaunas, Lithuania. Ph: +370-7-207250, fax: +370-7-209274.

# People Against the Nuclear Power Plant Mochovce

## EBRD considers a loan of 1.5 billion DM to complete the plant

by Lubica Trubiniova, Greenpeace

### Demonstration - Seminar

200 people demonstrated against the completion of NPP Mochovce on February 21, in Levice, Slovakia. Besides local inhabitants, many environmental NGOs took part in the protest-march. NGOs were represented, not only from Slovakia (Greenpeace Slovakia, Children of The Earth, Ipel Union, SZOPK, Tree of life, Association Slatinka etc.), but also from foreign countries like Austria and Germany. Parodically, the march passed the main square of Levice, where the Minister of Radiation celebrated the opening of the first radioactive waste storage in Slovakia.

Representatives of the energy sector and the state had a discussion with the people opposing Mochovce on the next day, following an expert seminar on ecological and economic questions of nuclear energy organised by the *Citizen Initiative for Conversion of the Plant Mochovce*.

### State of NPP Mochovce

The construction started in the second half of 80s. It was stopped in 1991 because of lack of money. There are strong efforts to complete the plant. At present, the 1st block is completed for 90% (including technology), the 2nd one for 60%, the 3rd and 4th ones for 50% (only building, not technology).

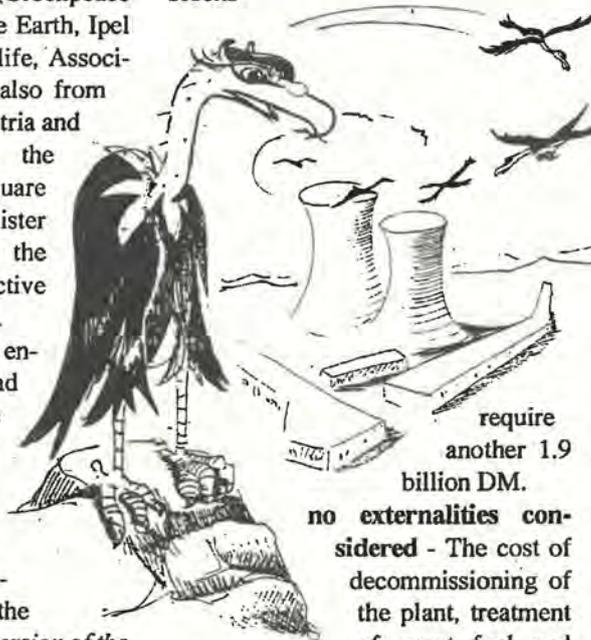
### Concerns on the completion of Mochovce

**safety** - The obsolete Russian type reactors (VVER 440/213 dated from the 70s) would not be permitted to operate in any Western countries at present. The reliability of using the western safety technics is also considered doubtful, because the two technologies planned to be combined are very

different.

**risk of radioactivity** - The ecological and health consequences of a potential leakage of radioactivity can be disastrous.

**high expenses** - 1.3 billion DM has been invested and the completion of the 1st and 2nd blocks requires about 1.5 billion DM as loan from EBRD. Later the completion of the 3rd and 4th blocks



require another 1.9 billion DM.

**no externalities considered** - The cost of decommissioning of the plant, treatment of spent fuel and

other radioactive wastes etc. has not been estimated.

**risk/ownership, disadvantageous loan condition** - However Slovakia takes the risk of the plant, (Slovakia guarantees the safety operation and is responsible for handling the impacts on environment and the consequences of an emergency), it is the Electricity de France, EDF who has the majority of the ownership, and the western investors are the ones who dictate the conditions of the loan.

Western investors will buy electricity for 5-6 pfennigs/kWh, while its price is 16-20 pfennigs/kWh in Germany. The Slovak Energy Utilities, SEP has 49% share and the EDF has 51% in the present shareholder company. It is likely that the expected joining of Bayernwerk and Preussen Electrica will further decrease the share of SEP.

### EBRD Loan to EDF?

If European Bank for Reconstruction and Development, EBRD will give a loan to Mochovce, in effect, the bank will give a loan to the expansion of EDF.

### No Date to Stop Bohunice!

EBRD has set a condition to the loan requiring the closing of the dangerous Bohunice nuclear power plant, but Slovakia has not set a date to stop Bohunice. Despite, that the former Czechoslovak government agreed upon the shutdown of Bohunice in 1993, or at least in 1995; the new government of Slovakia has strong tendencies to prolong the shutdown until 2000 or even until 2010.

### Postponed EBRD decision

The EBRD postponed its decision on the loan from March to July or August. The process of Environmental Impact Assessment (EIA) has started. Greenpeace Slovakia's most serious comment is that the EIA only evaluates the proposals for completing the plant and does not investigate any alternatives. A least cost analysis and an analysis of real energy needs of Slovakia will confirm that the nuclear power plant is a less advantageous alternative, than energy savings, renewable energy or natural gas fired cogeneration plants.

### Public participation

Greenpeace Slovakia calls for possibility of regular public participation in the decision making process, and providing complete information and appropriate time for comments. (shortened by the editors)

**Birds in the sky, fish in the water and uranium in the ground !**

Shadow conference and non-violent actions in Brussels - May 16-19, 1994 - in connection to Uranium Institute mid-term meeting. Info: For Mother Earth (see address at the front page).

## REC - Earmarked Grants

Regional Environmental Center (REC) in Budapest is as mentioned earlier in SEN supporting environmental movements in Central European countries. After the new structure of REC's earmarked grants, which missed energy among the topics, the European INforSE coordinators contacted REC to clarify its policy. We have been informed that REC sees energy issues as being of utmost importance in the region. Energy oriented projects can be covered by REC through most of the topics for earmarked grants. The topics are:

- Nature protection
- Environmental education
- Pollution prevention and clean technology promotion
- Sustainable agriculture
- NGO institutional development and public participation capacity building

This standpoint has been confirmed by Stanislav Sitnicki (head of REC) in a discussion with Emil Bedi at a recent meeting in Bratislava.

Information about REC and new deadlines for earmarked grants from REC in Budapest, or from REC local offices.

## Greenway Energy Group Conference in Budapest

Greenway Energy Group is preparing a 3-4 day conference on sustainable energy development by the end of May, 1994. During the conference there will be presentation of sustainable energy developments in different countries, and discussions of the roles of NGOs in the promotion of a sustainable energy path.

One of the workshops at the conference will deal with the possibilities for introduction of carbon/energy taxes in Central and Eastern European countries. As a basis for this workshop Foundation for Alternative Energy (FAE) in Bratislava will publish a book about the topic with an overview of what is going on in OECD countries.

More information FAE-SZOPK, att. Emil Bedi, Gorkeho 6, 81101 Bratislava, Slovakia, ph/fax: +42-7-364665.

# Gabcikovo Water Dam

## After One Year

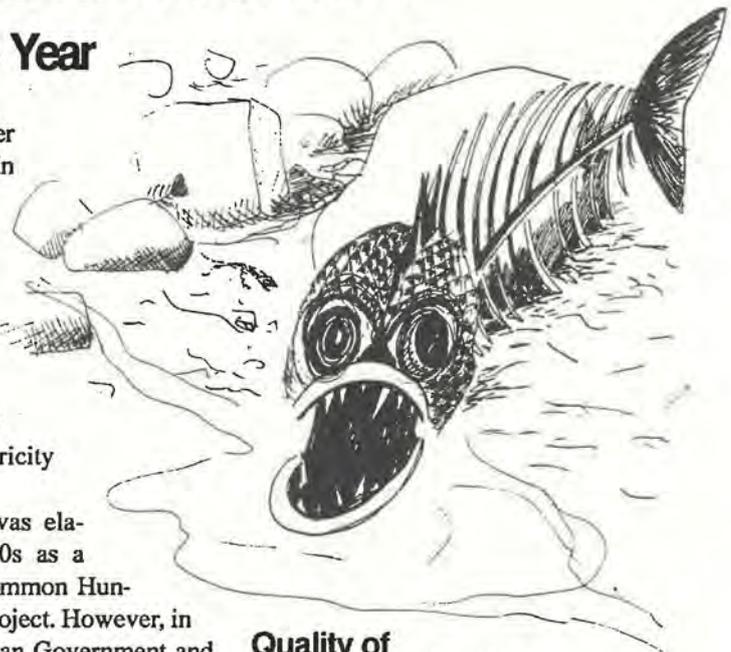
Gabcikovo Water Dam - GWD in Slovakia started its operation one year ago. The electricity produced, in 5 turbines, is reported to be around 4-10 % of Slovakia's electricity production.

The project was elaborated in the 70s as a megalomaniac common Hungarian - Slovak project. However, in 1989 the Hungarian Government and Parliament stopped the Hungarian part of the construction at Nagymaros and Dunakiliti and in 1991 denounced the agreement from 1977 between the two countries. After this, there were no negotiations between the countries for further solution. A modified version of the original plan was constructed, only in the territory of Slovakia, by prolonging the head-water canal with additional 10 km.

The Slovak investors of the Dam diverted 90% of the water from the original common Danube river bed in a 35 km long section, leading it to the Slovak side, without an agreement with Hungary and without informing either the Federal (Czechoslovak) or the Slovak government. This was a violation of the international commitments (London Minutes) and a violation of the country's inland law as well. The Court of Justice at Hague is hoped to solve this conflict.

## Water flow deep under the minimum

In the original river bed the flow decreased to 250-400 m<sup>3</sup>/s (only 10-15% of the natural flow). This is permanently deep under the minimum flow, which is necessary for the existing ecosystem that has belonged to the most valuable ecosystems in Central Europe. The lack of water causes problems for the farmers and destroys the floodplain forests that will not last in its present state any longer.



## Quality of underground water

The Dam endangers the huge supplies of drinking water of high quality in the underground reservoir of the region, the biggest in Central Europe. The impact for the quality of the underground water is not known yet, partly because lack of monitoring and partly because the information is not public. Moreover, the promised water treatment stations have not been realized until today.

## Flood damages

The floods in December '92 and July '93 caused damages of several million crowns at the Slovak side, because a number of building sites remained uncompleted to speed up the construction. It is also very risky that in lack of agreement the Hungarians are not informed of Slovak actions in case of a sudden flood.

## High Costs

There are serious financial difficulties. The investor, a state enterprise, keeps on asking more and more money plus economical advantages from the state budget (state bonds, reductions from the income taxes).

Sources:

Greenpeace Slovakia,  
The Slovak Rivers Network and  
Society for Sustainable Living.

# Don't Just Take a Vacation

The Clean Energy Brigades offer a chance for you and other volunteers from across Europe to show a cynical Czech public the possibilities for reducing pollution through energy efficiency. By making simple repairs and improvements you can cut homeowners' energy bills directly demonstrating that efficiency works.

Volunteers can choose one or both of two work camps, each placed near to a present or future pollution hazard. The first, lasts the two last weeks of June and is near to Litvinov in North Bohemia. The second, lasts throughout July and is near to the planned Temelin nuclear power plant in South Bohemia.

We hope to gather about 100 volunteers, about half of them Czech, for the camps. There will be no participation fee, and there will be free food, housing and entertainment for all volunteers. Eastern European volunteers will also get a 50% travel reimburse-

ment. Volunteers should let us know in advance to which camp they wish to come or if they want to come to both.

The volunteers will be trained to make changes during their first days. The work will often be simple, such as installing new or better windows or compact fluorescent light bulbs. The goal is for 100 volunteers - Czech, East European and West European - to improve about 1000 households in the two regions. Volunteers will also distribute pamphlets on energy efficiency to area residents.

Why these camps?

In the Czech Republic, energy saving and conservation could replace some of the dangerous energy sources available:

- brown coal, in Northern Bohemia, led to terrible air pollution lowering the quality and length of life there.
- nuclear power, in Southern Bohemia -

the planned power plant Temelin - is also an environmental hazard with planned radioactive pollution and the threat of accidents.

Yet due to cynical government policy during the communist era, Czechs are suspicious or unaware of the possibilities of energy efficiency. Central plans included it on paper, but ignored it in reality - the public now thinks it is a joke. Therefore they feel there is no alternative to brown coal and nuclear power.

**Show them the difference -  
come help the Clean Energy  
Brigades**

**make it real !**

Erikk Piper, Hnutí Duha, Jakubská  
nam 7, 60200 Brno, Czech Republic.  
Tel: +42-5-4221 0438; fax: +42-5-  
4221 0347.

## Ecotopia

# 1994

A large group of Romanian environmental groups are right now busy with organizing the sixth Ecotopia - an international environmental summer camp. The energy for the camp will mainly be provided by renewables. There will be workshops - theoretical and practical - on renewable energy and energy savings during Ecotopia, and we will build up part of the energy system for the camp.

**Come and build a  
Dream Village  
in  
Romania  
August 1-21**

Further information: EYFA, Postbus  
92066, 1090 AB Amsterdam.  
Ph/fax: +31-20-6657743.

## Scotland Losing Out on Green Energy

The Scottish Renewables obligation, announced by the Secretary of State for Scotland on 21 July 1993, will require Scottish Power and Scottish Hydro Electric to obtain further generating capacity from renewable energy sources. A target figure of 150 MW (declared net capacity) by the year 2000 has been set.

The first of three *Scottish Renewable Order* is intended to be for 30-40 MW (declared net capacity), though this is subject to review by the Secretary of State *in light of the quality and cost of the proposals received*.

The applications for grid connec-

tion quotations made to Scottish Hydro-Electric shows that the provisional applications totalling more than 10 to 20 times the capacity currently on offer by the Scottish government.

*The Scottish Campaign to Resist the Atomic Menace (SCRAM)* tries to make pressure on the Secretary of State for Scotland to expand the scope of the Renewable Order, to change the method of project selection, to put community involvement and environmental consideration above cost and to provide support for the Scottish industry. SCRAM argues that the limited size of the Order, and the lack of sup-

port for the Scottish industry, could mean a lost opportunity for companies to get a toe-hold in a potentially massive worldwide market. It also warns that unless the development of renewables is undertaken in a way, which offers real benefit to the local communities concerned, then the nascent renewables industry could be killed off by public opinion.

More from Graham Stein editor of *Safe Energy Journal* of SCRAM, 11 Forth Street, Edinburgh EH1 3LE Ph: +44-31-557 4283, fax: +44-31- 557 4284.

# European Sustainable Energy Seminar 1994

## July 4-8 in Germany

### Program

#### Sunday, July 3

Arrival at Energie- und Umweltzentrum

#### Monday, July 4

9.30 Presentation of the Seminar

10.00 Presentation of the Participants

- short description of people and projects (be prepared)
- introduction of yourself
- description of your project or group, organisation
- How old? How many people?
- What sort of activities do you have?
- Which way of cooperation do you look for?

14.30 Presentation of the Energie- und Umweltzentrum

16.30 Presentation of the workshop themes

- Solar Energy
- Low Energy Housing
- Energy Saving Technics
- Sustainable Energy and Employment
- Cooperation on a European Level
- Energy and Education

20.00 Organizing Workshop Groups

#### Tuesday, July 5

9.30 Energy Agency

- German Example

11.30 Project - Market

14.30 Workshops

#### Wednesday, July 6

9.00 Excursion

- to Hannover and Hameln
- an example of renovation of a block of city houses
- solar institute
- wind turbine cooperation
- zero energy house

#### Thursday, July 7

9.30 Working on EC level

11.30 East NGO meeting and West NGO meeting

14.30 Workshops

#### Friday, July 8

9.30 NGO networking in the coming year

11.30 Presentation of the workshops

17.00 Evaluation of the seminar

20.00 Dinner and Party

#### Saturday, July 9

13.00 INforSE Europa

-18.00 - annual meeting

### Workshops:

#### Technical Workshops

Introduction of technologies and praxis by people that have worked in specific fields at the center for years. A possibility to see different demonstration projects at the center. Invited people with whom the center works together with, like producers.

#### Sustainable Energy and Employment

Workshop about the employment benefits of implementing different sustainable energy solutions and how this can be used in campaigns for sustainable energy. The workshop will include a presentation and discussion of the European INforSE campaign on energy and employment. It will focus on how the participants can use this campaign and the information on energy and employment in their own organizations and internationally.

**Cooperation on European Level**  
(further information available from Energie- und Umweltzentrum)

**Energy and Education**  
(further information available from Energie- und Umweltzentrum)

### Practical Information:

- The working language at the seminar will be English
- Participation fee is equal to 250 German DM and covers material, accommodation (a few in tents) and food
- A limited number of Eastern European participants will be supported
- The place of the seminar: Energie- und Umweltzentrum am Deister e.V.  
31832 Springe Germany  
Ph: +49-5044-1880 or 380  
Fax: +49-05044-34640  
located 30 km South of Hannover
- If you want to join the seminar, send the form and pay in advance equal to 50 German DM before June 15, 1994
- When you sign up, please include a short description of yourself and your organisation: interests, activities, plans

**Organized by Energie- und Umweltzentrum am Deister e.V. in cooperation with INforSE Europe.**

- I would like to participate in the '94 Seminar
- I would like further information on the '94 seminar
- I will participate in the INforSE Europe meeting 1994

Name:

Organization:

Address:

Country:

Fax:

Ph:

E-mail:

- I include a cheque/in cash the equivalent of 50 DM
- I can only participate if I get financial support for seminar fee
- I can only participate if I get travel reimbursement \_\_\_\_\_ DM

# Energie- und Umweltzentrum



The Energie- und Umweltzentrum am Deister is located 30 km south of Hannover. It is a self organised association working for more than 13 years in the following fields: Renewable Energies, Energy Saving, Ecological Building and Environmental Conservation.

In 1981 a former vacation home for school classes was bought. The building was altered with different technologies making it able to function as a research model. As a result the fuel consumption was reduced by 70% and the water consumption decreased by 50%. There are solar systems providing hot water, different insulation systems and rain-water collection has been installed. On the grounds there are also reed bed sewage systems, an organic vegetable garden and orchard. In 1992 a new low energy guesthouse was built to show the new technologies which are available.

33 members of the permanent staff earn their living by working in Further Education organizing expositions, by doing consultancy or by working in one of the two independent companies. The group consider itself to be a self managed, non profit project where everybody has the same vote and same wages.

#### The different working places are:

- Center for Further Education and the Guesthouse
- The mobile energy and environmental exhibition
- The water and environmental laboratory
- The Soft Energy GmbH (trade and installation company)
- Engineering Company for Building, Energy and Environment GmbH

#### Return to:

Energie- und Umweltzentrum am Deister  
att. Marlies Ante  
31832 Springe  
Germany

before June 15, 1994

## General Meeting of INforSE Europe

The third meeting of INforSE Europe will be held at Energie- und Umweltzentrum am Deister, July 9, 1994. All INforSE member organizations in Europe are invited for the meeting.

#### The preliminary agenda is:

- Election of chairperson and rapporteur.
- Report of the present situation and the INforSE activities during the last year. The report will be prepared by the INforSE coordinators.
- Plan of Action for INforSE Europe 1994/95. A proposal from the coordinators will be sent to member organizations 4 weeks before the meeting.
- INforSE campaign on energy and employment, European activities and inputs from European NGOs to INforSE workshop in November 1994 and to the UN Social Summit, March 1994. Eventually formation of a working group for the campaign.
- Budget for INforSE Europe 1994/95.
- Election of coordinators.
- Decision on the place and exact date of the next meeting of INforSE Europe.

All member organizations will receive an invitation to the meeting. There are no support for travel expenses to the meeting presently; but the meeting can be combined with the European Sustainable Energy Seminar, July 4-8.

Further information: OVE, att. Gunnar Boye Olesen, Willemoesgade 14, 2100 Copenhagen Ø, Denmark. Ph: +45-3142 9091, fax: +45-3142 9095.

# Regional News - North America

## Sustainable Energy Budget

US NGOs and the SunDay Campaign have released their proposal for a Sustainable Energy Budget for the US Department of Energy (DOE) for the Fiscal Year 1995. The proposal is a result of more than 6 months work by more than 30 national environmental, business, utility and state government organizations. It recommends an increase of USD 491 mill. of DOE's energy efficiency program and USD 320 mill. of its renewable energy program, leading to almost a doubling of these programs. Besides, cuts of USD 1230 mill. from nuclear and selected fossil fuels programs is proposed.

The proposal was presented in November '93 as the beginning of a grass-roots campaign to press the members of US Congress to formally endorse a shift in funding priorities in the DOE budget. The campaign is running during the current US federal budget discussions. A copy of the Sustainable Energy Budget can be ordered from Sun Day Campaign, 315 Circle Avenue, #2, Takoma Park, Maryland 20912-4836, USA.

## Sun Day 1994

More than 200 organizations are now planning a celebration of renewable energy and energy efficiency Sunday, April 24. Sun Day 1994 will feature one-day educational activities as fairs, conferences and exhibitions as well as activities, that have a longer-term impact such as announcing changes in governmental policies, building codes, and initiation of energy policy reviews by corporate and government decision makers. The campaign is striving to be broad-based and includes electric utilities, renewable energy trade associations, and associations representing government interests. The campaign has 3 primary objectives:

- education of the public, media and decision makers
- showcase the programs and technologies being sponsored by the participating organizations.
- encourage new public and private initiatives to expand further the use of renewable energy and energy efficient technologies.

The activities are coordinated by Sun Day Campaign (address above).

## Energy Fast

Earth Day Energy Fast ask all persons (as well institutions and business) to cut back or eliminate energy use - by incorporating energy conservation techniques into their routines - from Earth Day April 22 through the following Sunday April 24. 6 categories, targeted for specific energy reduction goals, in terms of programs and simple things individuals can do, have been carefully chosen. Some of the categories are:

- Transportation: Use Mass Transit
- Climate control: Reduce Temperature Settings
- Lighting: Retrofit with Green (low-energy) bulbs
- Water: Conserve

Contact: Earth Day Energy Fast, 1002 1/2 N. Sweetzer Ave. West Hollywood, California 90069, USA.

## Tehachapi Wind Fair

Organizers of the third *Tehachapi Wind Fair* have announced an expanded program for the popular event May 21-22 at Mountain Valley Airport (a popular sailplane center), Tehachapi, California. The event will include a fair of windturbines, solar panels and electric vehicles, bus tours and a hike to wind turbine parks, kite flying and a playground where the children for instance can slid down a wind turbine blade. The Fair is part of SunDay 1994. Contact: Kern Wind Energy Association, att. Paul Gipe, P.O.Box 277, Tehachapi, California 93581, USA.

## US Climate Action Network Develops Resource Library

If you are trying to get more information about global warming issues, from energy to economics or science, US-CAN might help you from their new information resource library and clearinghouse.

Contact: Andrew Gettelman, US CAN, 1350 New York Av., N.W., #300, Washington DC 20005, fax: +1-202-783 5917, e-mail: uscan@igc.apc.org.

## Climate Plans for Cities

In November 1993 Portland in Oregon was the first US municipality to adopt a comprehensive global warming strategy. In December Minneapolis and Saint Paul in Minnesota and Dade County in Florida followed. Everybody are with these plans embarking on new municipal policies to reduce energy wasted in power plants, buildings and transport, leading to a 20% overall reduction in CO<sub>2</sub> emissions from 1988 to 2005 or 2010.

Implementation of these plans will require significant political commitment locally. The transportation sector, for instance, requires challenging remedies if patterns of auto dependency are to change. American cities use up to five times more energy per capita than European communities.

A key objective of the Minneapolis plan is a 20-25% reduction of energy used in residential and commercial buildings. Implementation of this will cut the municipality's budget deficit and keep more jobs in the local economy by creating jobs in the construction sector locally.

These plans are among 12 plans conceived around the world as models for urban centers by the Urban CO<sub>2</sub> Reduction Project, sponsored by the International Council for Local Environmental Initiatives.

Source: Hotline, January 1994, US Climate Action Network.

## Renewable Energy Education

*Solar Energy International* (SEI) is organising an International Renewable Energy Education Program (IREEP) in the summer 1994. The 12 weeks program consists of hands-on how-to workshops on solar, wind and water power technologies, including a workshop on International Project Development focusing on methods of participatory planning and the issues of woman in development.

The educational program will be held in the small community of Carbondale, Colorado in the heart of the Rocky Mountains.

Info: SEI - ph: +1-303-963 8855, fax: +1-303-963 8866.

# World Bank Energy

by Gunnar Boye Olesen, OVE

In 1992, the World Bank has adopted a new energy policy based on two policy papers *Energy Efficiency and Conservation in the Developed World* and *The World Bank's Role in the Electric Power Sector*. These policy papers call for loans to be based on integrated energy strategies (Integrated Resource Planning), institutional capacity-building, economic pricing and regulatory reform targeting improved end-use efficiency.

**While the energy policy papers of the World Bank are substantially improved, a new evaluation of the World Bank's lending practices in the power sector does not show a correlation between the policies and the actual lending practices.**

The study made by Environmental Defense Fund (EDF) and Natural Resource Defense Council (NDRC)

shows that in the power sector the loans under preparation during the first 6 months of 1993, totalling over USD 7 billions, do not comply with the Bank's new policy.

The study shows that the Bank fails to implement its own policy in all areas studied, except for pricing, where the Bank intends to enforce its policy. The Bank staff has no requirement or incentive to operationalize the policy which they have only applied selectively. Of the 46 loans reviewed only two loans will comply with the Bank's new energy policy: one loan to the Polish Power Grid Company and one to the Government of Colombia.

## Background

Historically, the World Bank has not provided many loans for energy efficiency, while the general power sector lending has often had serious environmental and social impacts. As an example Bank projects of the Industry and Energy Department are currently

displacing over 380,000 people (according to a recent World Bank document *The Bank-Wide Resettlement Review: Mid-term Progress Report*, August, 1993).

During the 1980's only one percent of the Bank's energy lending was for end-use efficiency, and about half of these funds had to be reprogrammed to other use due to project problems. One major problem was that the potential industrial investors were unwilling to borrow money for energy efficiency improvements. They preferred to borrow money for production expansions.

Another way of supporting energy efficiency is the Bank's calls for removal of subsidies for energy. The Bank regularly includes conditions on its loans, requiring electricity pricing reform. This condition has, however, in many cases not been enforced.

Besides this, the Bank has attempted to improve end-use efficiency through units with earmarked funding from donor countries. An example is the *Energy Sector Management Assist-*

## Invitation to participate in World Bank projects

The World Bank is regularly inviting NGOs to participate in a number of its projects. In the following are listed some examples of projects open for NGO-involvement.

Country	Project	NGO involved	NGO involvement	Budget Year
Central Africa	Energy I	COMAFOR, consultant	Environmental evaluation of storage dam	FY 89
Ethiopia	Calub Energy	Service Delivery	Community development a.o.	FY 94
Senegal	Sustainable Textbook System	INEADE	Define curricula and textbook	FY 93
Philippines	Leyte-Cebu Geothermal	-	Assist environmental supervision	FY 94
	Casecanan Hydropower	-	Pre-identification	FY 96
India	Revelal Resources Development	-	Collaborate with cooperatives and public companies	FY 93
Russia	Oil Rehabilitation	-	Design of project and facilitate local consultations	FY 93

When no NGO is listed for a project it means that no NGO has been identified

*Budget year* is the financial year (FY), where the project is approved by the World Bank's financial directors.

For further information and a copy of *List of World Bank-Financed Projects with Potential for NGO Involvement*, please contact: World Bank, International Economic Relations Division, Operations Policy Department, att. Mr. Arthur Thomas, 1818 H Street, N.W., Room No. T-8102, Washington DC 20433, USA, ph: +1-202-473 1151, fax: +1-202-676 0576.

# \$strategy & Practice

ance Program (ESMAP) that has conducted many assessments and pre-feasibility studies in developing countries. Yet, these hundreds of recommendations were not implemented. Proposed end-use energy efficiency investments were generally not included in subsequent Bank loans. Another such unit is the Asia Alternative Energy Unit (ASTAE), which is located on the loan-making side of the Bank, providing it with greater opportunity to interact with the loan-making staff than ESMAP, which is located on the policy side of the Bank.

## New Energy Policy

In October 1992 the World Bank's Executive Board approved the two above mentioned policy papers. The two papers call for an end to *business as usual*, and state that the Bank's energy loans will only be provided to those countries that have undertaken certain energy reforms. For example, the papers call for borrowers to increase the price of electricity to its long-run marginal cost.

The more significant observation of the new policy arise from the understanding that marginal cost pricing and general capability improvements alone are insufficient to achieve implementation of end-use energy efficiency. A new policy, introduced with the papers, is that energy loans should be based on or support energy



strategies that consider both demand and supply-side resources. Another new policy is that the Bank will give high-level, in-country visibility to strengthen end-use energy efficiency institutions.

The report of EDF and NRDC states: *If executed and if the (World) Bank more effectively enforces its pricing and regulatory reforms, these new energy policies could be the single most important factor in driving increased levels of investment in end-use energy efficiency in developing countries.*

## The Good Examples

Among the 46 loans evaluated by EDF and NRDC only the two described below are in reasonable agreement with the new World Bank Energy Policy. As local NGOs will know, these projects are in no way perfect; but they are the best World Bank financed projects in this respect.

The World Bank has played an active role in helping Poland to improve its power sector. The Bank has pushed forward to support energy efficiency in several sectors, despite the current oversupply of electricity. The Bank provides direct finance for end-use efficiency within the current Heat Supply Restructuring and Conservation Project. This will also be done in the proposed Katowice District Heating Project, evaluated by EDF and NRDC.

Components in these loans make it possible to provide small loans to costumers for insulation and improved metering, which allow costumers to realize the savings. Such investments have an estimated pay-back period of 5 years. In the future all loans to Polish Power sector will be based on Integrated Resource Planning (IRP), including an upcoming USD 800 mill. loan, that has an IRP component.

In Colombia, the World Bank is planning a loan for private sector energy development. The loan is planned as USD 15 mill. technical assistance loan, followed by a larger investment loan. The technical assistance loan will seek to strengthen the pricing, regulatory and environmental framework for the power sector as a needed pre-condition for investment. It will also include a Demand Side Management (DSM) component including efficiency standards, building codes and a pilot DSM program.

Source: *Power Failure*, EDF & NRDC, February, 1994.

## The Other Voices of the Planet !

International gathering of social movements and NGOs in reply to the 50th anniversary of IMF, World Bank and GATT September 26 - October 2nd 1994. Different topics will be discussed, such as the social and environmental effects of WB actions, the future of GEF, debt and adjustment, consequences of the free market (GATT, NAFTA), how women are affected by IMF/WB policies and the need for alternative development policy. The alternative forum will be concluded on Sunday October 2nd with a debate between IMF/WB staff and representatives of NGOs. Contact: AEDENAT, Campomanes 13, 28013 Madrid, Spain. Ph: +34-1 5590334, fax: +34-1 5717108.

## 50 Years is Enough !

In September 1994 the IMF and the World Bank celebrate their 50th anniversary in Madrid, Spain. But not everybody sees a good reason to party. Campaigns against the Worldbank will happen throughout 1994. Contact: The Ecologist, Agriculture House, Bath Road, Sturminster Newton, Dorset DT10 1DU, ph: +44-258-473476, fax: +44-258-473748.

# Mixed Governmental Support for Energy Conservation

The *Energy Policies of IEA Countries, 1992 Review*, for the first time, published public sectors budgets for energy conservation between 1990 and 1992. The budgets do not include utility or research programs. Some include state or regional programs.

The total IEA (International Energy Agency) budgets for energy conservation fluctuated with large swings with no discernible trend in the last three years:

1990	USD 1,726 million
1991	USD 1,962 million
1992	USD 1,862 million

The IEA report states that the overall increase contrasts with the declining emphasis and funding levels for energy efficiency during the latter part of the 1980s, when governments began to bring expenditures more into line with revenue and decrease energy efficiency spending as world energy prices declined.

The budgets of the IEA countries also demonstrate a wide variation in rates of annual growth between 1990 and 1992. Seven of the countries report a decline in funding between 1990 and 1992. The per capita expenditures also show the significant difference in effort for the selected countries. Three

countries - Germany, the Netherlands and Norway - are by far the highest spenders on energy conservation, while many others spend less than one dollar per person.

## Funding level - a reliable indicator?

The level of funding is considered as an indicator of countries' commitment given to energy conservation serving both energy and environmental policy objectives. However, it can be a poor indicator of interest and support, since many programs - standards, regulations, voluntary actions, - require fairly low expenditure.

## Energy Intensity Ratios show no difference!

The energy intensity of a country (total primary energy supply per unit of GDP) is a frequently criticised, but still widely used yardstick for efficiency improvements. However, the numbers do not show direct correlation between government spending and energy intensity. There are almost no changes in the countries' energy intensity ratios from 1990 to 1992. The yearly \$11 per capita spent on energy conservation was far from making significant changes in the energy intensity. More efforts are needed to cut this ratio down.

Budgets for Energy Conservation in selected IEA countries

	1	2	3	4
Australia	4.3	15.0	0.25	0.48
Canada	19.5	6.3	0.72	0.54
Denmark	16.7	152.5	3.24	0.29
Finland	3.6	68.4	0.72	0.47
France	29.6	-4.3	0.52	0.37
Germany	887.0	-10.4	11.12	0.42
Ireland	1.6	-11.0	0.45	0.42
Italy	22.6	n.a.	0.39	0.31
Japan	27.8	36.9	0.22	0.25
Netherlands	166.8	-17.7	11.07	0.45
New Zealand	1.5	-7.0	0.44	0.63
Norway	39.6	n.a.	9.3	0.32
Portugal	6.2	7.6	0.63	0.67
Spain	35.1	-9.3	0.9	0.44
Sweden	22.5	-1.8	2.61	0.43
Switzerland	12.1	n.a.	1.76	0.24
UK	92.6	69.3	1.61	0.42
USA	327.2	8.6	1.29	0.43
IEA Total	1862.0	3.9		0.39

1. 1992 budget, million USD
  2. 90-92 budget, % annual growth
  3. 1992 Budget, USD per capita
  4. Energy intensity ratio
- National currencies are converted to USD.

Source: Energy ... in Demand  
19 rue Paul Feval, 75018 Paris, France.

## Publications

### After UNCED'93, Proposals for Sustainable Energy Development

A review of energy reports and activities related to the Earth Summit. Analysis of policy measures. Proposals for an Energy Section of an Earth Charter and Action Program, new UN Sustainable Energy Agency, etc. J. Szoleczky, et.al., Energy Group, Physics Dep., Technical University of Denmark, DK-2800 Lyngby, fax: +45 45 931669, 113 pages, USD 15, 1994.

### Power Failure - A Review of the World Bank's Implementation of its New Energy Policy.

EDF, 257 Park Ave. South, New York, NY10010, 76 pages, USD 10, 1994.

### WB and IMF information pack

Third World First, 217 Cowley Road, Oxford OX4 1XG, UK. Tel: +44-865-245678; fax: +44-865-200179.

### A New Power Base: Renewable Energy Policies for the Nineties and Beyond

Kozloff, WRI Publications P.O. Box 4852, Hampden St, Baltimore, MD 21211, USA, 196 p. USD 29.95, 1993.

### Integrated Resource Planning, Making electricity work in Europe

Prepared for Greenpeace International. Woolf, The Assoc. for the Conservation of Energy, 9 Sherlock Mews, London W1M 3RH, UK, 155 p. 1993.

### European Directory of Energy Efficient Building, 1994

James & James Science Publ., 5 Castle Rd, London NW1 8PR. ph: +44-71-2843833, fax: +44-71-2843737. 344 p.

### Independent NGO Evaluations of National Plans for Climate Change Mitigation

First Review, Co-ordinated by Climate Action Network. CNE, rue de Taciturne 46, B-1040 Brussels, Feb. 1994.

### Elfin News

Electric Utility Production Cost & Financial Model, Computer Progr. EDF, Rockridge Market Hall, 5655 College Av., Oakland, CA 94618 USA. Ph: +1-510-6588008, fax: +1-510-6580630.

### Periodicals

#### Hot Line

US Climate Action Network, 1350 New York Ave. NW #300, Washington DC 20005 USA, fax: +1-202-7835917.

#### UN Climate Change Bulletin

Quarterly. Information Unit on Climate Change (IUCC), UNEP, CP 256, 1219 Chatelaine, Switzerland.

#### VATIS, Value-Added Technology Information Service

Update on Non-Conventional Energy, Asian and Pacific Centre for Transfer of Technology, Adjoining Technology Bhawan, P.O. Box 4575, New Delhi 110016, India.

# Electricity Production Technologies for Rural Development

by Jozef Viglasky, Technical University in Zvolen, Slovakia

Renewable energy sources are the most promising for rural development from many points of view. They allow economic growth with environmental concerns and energy security without a significant increase in cost.

## Economic Considerations

The most frequent question is: *How much does any renewable energy plant cost per kW installed power?* This question is a little wrong. Its answer can only be used for information in the first step, because there is no such thing as a standard system or *normal equipment cost*, and this parameter is not enough for a final decision. It must also be taken into account that the cost of many components vary little with the size of the energy system. Anyway the average cost per kW<sub>power</sub> of production capacity can be listed as\*:

Photovoltaic	8,000 USD/kW
Wind	2,000 USD/kW
Biogas	1,500 USD/kW
Biomass	1,400 USD/kW

Thus, from a general point of view biomass energy can be recommended. The introduction of small-scale biomass fueled engine systems as a new electricity source or as replacement for diesel and petrol driven power units seems highly attractive for small industries in rural areas as well as villages. Most promising is systems for wood industries with a need for electricity and a continuous output of residue products as wood chips, saw dust and bark.

## Economic Analysis of Wood-gas Utilization

The conversion of stationary diesel engines to run on wood-gas is one of the most important potential uses for shaft-power. The example analysed is a comparison between a conventional 30 kW diesel unit and an imported complete gasifier and engine unit. This example is chosen, because it is most feasible to replace the similar diesel/petrol systems.

By using wood-gas in rural area of tropical countries with a good wood supply, it is possible to save 12-50% of

the costs compared to generating electricity by a diesel engine, table 2. Thus, a wood-gasifier engine system is an excellent investment. In most countries it can be locally manufactured and reduce import of costly fuel.

## Perspectives

Wood gas for electricity production has been found to be promising especially in rural areas and on tropical islands where fossil fuels are extremely expensive and high vegetation growth generates enough biomass for a gasifier system. By changing from a conventional diesel engine a net saving of 35% of the costs can be achieved. Gasification characteristics of tropical wood are not well enough known, and need to be explored. Promising results from use of gasifiers in Philippines, Brazil, etc. have been reported, so we can suppose there will be a very little risk for failure by increasing use of biomass-fuel.

\* European Directory of Renewable Energy Suppliers and Services, 1993. The data represent the long-term prospects for the renewable energy market.

	baseline cases	range used in analysis
Power output	30 kW	
Interest rate	15%	5-30%
Oil price inflation	0%	0-9%
System life-time	6 & 15 years	3-15 years
Annual operating period	3000 hours	500-8000 hours
Diesel cost	50 cents/litre	30-60 cents/litre
Wood cost	20 USD/air-dry tonne	0-40 USD/tonne
<b>Diesel system</b>		
Capital cost	1000 USD/kW	800-1300 USD/kW
Annual maintenance	5% of capital cost	
Lubricant cost	5% of diesel cost	
Diesel consumption	0.35 litres/kWh	0.3-0.4 litres/kWh
<b>Gasifier system</b>		
Capital cost	700/1400/2800 USD/kW	600-3000 USD/kW
Annual maintenance	10/5% of capital cost	
Lubricant cost	2/1 x lube cost for diesel system	1-4 x lube cost for diesel system
Additional labour cost	1200/1000 USD/year	500-2000 USD/year
Diesel substitution	100%	
Engine derating	0%	0-30%
Wood consumption	1.4 kg/kWh	1.0-1.8 kg/kWh

**Table 1.** Assumptions used in economic analysis of shaft-power system utilized in tropical countries with plenty of wood. Based on information available in literature and from manufacturers.

	Diesel system	Gasifier system		
		A	B	C
Capital investment, C	30,000	21,000	42,000	84,000
Life-time	6	6	6	15
Annual capital charges				
- diesel plant	7,900	-	-	-
- gasifier plant	-	5,500	11,100	14,400
maintenance	0.05xC	0.10xC	0.10xC	0.05xC
	1,500	2,100	4,200	4,200
Additional labour	-	1,200	1,200	1,000
Lubricants	800	1,600	1,600	800
Diesel fuel	15,800	-	-	-
Wood fuel	-	2,500	2,500	2,500
Total Annual cost	26,000	12,900	20,600	22,900
Overall power cost (cents/kWh)	28.9	14.4	22.9	25.4
Savings compared to diesel system	-	50%	21%	12%

**Table 2.** Breakdown of annual costs in USD for 30 kW shaft-power systems, baseline cases. Costs are estimated on the basis of table 1.

Annual capital charges are the initial equipment cost (capital investment) annualized over a 6 or 15 year period (the life-time) at an interest rate of 15%.

A: Low cost gasifier plant (gasifier, purification system, gas engine, generator) - domestically produced. 700 USD/kW.

B: Medium cost gasifier plant. 1,400 USD/kW.

C: High cost gasifier plant 2,800 USD/kW.

B & C are completely assembled on trailers, manufactured in Europe, and imported in developing countries.

# Events

*April 1-8, 1994*

**Training course on RE, Sweden**

For youth, with the aim to start up new activities on energy.

Info: Viktor Jonsson, Godemansg. 3 B, 417 06 Göteborg, Sweden. Tel/fax: +46-31-514-215.

*April 5-8, 1994*

**Global Climate Change: Science, Policy and Mitigation Strategies, Arizona, USA**

Conference. Info: Dr. C.V.Mathai, Arizona Public Service Company, P.O.Box 53999, M/S 9366, Phoenix, AZ 85072, USA. ph: +1-602-2503569, fax: +1-602-2508313.

*April 11-15, 1994*

**12th European Photovoltaic Solar Energy Conference and Exhibition, Amsterdam, the Netherlands.**

Info: WIP, Sylvesteinstrasse 2, D-81369 München. ph: +49-89-7201232, fax: +49-89-7201291.

*April 18-22, 1994*

**The World after Chernobyl, Minsk, Belarus**

Info: Belarussian Charible Fund "For the Children of Chernobyl", ph: +7-0172-341215, fax: +7-0172-343458.

*April 22, 1994*

**Earth Day**

*April 22-24, 1994*

**ISES NGO Roundtable, Greece**

Info: Jenny Gregory, ph: +44-734-730073, fax: +44-734-730820.

*April 24, 1994*

**Sun Day 1994, USA**

coordinated campaign with more than 50 events in USA.

*April 25-28, 1994*

**Regional INforSE meeting for Asia Pacific, Hanoi, Vietnam**

together with Conference on Sustainable Energy Development and Exhibition of RE Products from the Region. Info: Benjamin Gertes, PCATT, 224 D Silang Street, Batangas City, Philippines 4200. ph: +63-43 723 1155, fax: +63-2- 815 0276 (c/o Daqna).

*April 26, 1994*

**Chernobyl Day**

*April 20-May 6, 1994*

**NGO Islands Forum, Barbados**

Parallel with UN-conference. Theme on appropriate technology, exhibition on renewable energy.

Info: Barbados Env. Association, P.O. Box 132, Bridgetown, Barbados, W.I., fax-809-427 0619.

*May 9-11, 1994*

**1st Motor Biofuels European Forum, France**

Info: Ademe, 22 rue Alsace-Lorraine, 45 000 Orleans.

*May 15, 1994*

**Climate Alliance Action Day**

Info: J Matikainen, Climate Alliance Action Days, Fredrikinkatu 63 A 8, 00100 Helsinki, Finland. Tel: +358-0-694-42-33; fax: +358-0-694-17-86.

*May 16-19, 1994*

**Birds in the sky, fish in the water and uranium in the ground, Brussels**

Shadow conference to Uranium Institute meeting.

Info: For Mother Earth. Ph: +32-9-2333268, fax: +32-9-2334924, e-mail: motherearth@gn.apc.org.

*May 18-21, 1994*

**Regional INforSE Meeting for Central Asia, New Delhi, India**

together with Workshop to Promote RE Programs through NGOs.

Info: R Myles, AFPRO, 25/1A, Inst. Area, Pankha Road, "D" Block Janakpuri, New Delhi 110058, India. ph: +91-11-5555412, fax: 91-11-5500343.

*May 24-27, 1994*

**The European Conf. on Sustainable Cities & Towns, Aalborg, Denmark**

Info: ICLEI, ph: +49-761-368920, fax: +49-761-36260.

*May-July, 1994*

**International Renewable Energy Education Program, Colorado**

Info: SEI - ph: +1-303-963 8855, fax: +1-303-963 8866.

*June, 1994*

**Regional INforSE meeting for Latin America, Brasilia, Brazil**

together with workshop and ELAN-network meeting

Info: IED, Emilio Rovere, c/o UFRJ, Bloco C, Sala 211, C.P. 68565, Ilha de Fundao, 21945 Rio de Janeiro, Brazil. ph: +55-21-2709995, fax: -2906626.

*June 2-5, 1994*

**Towards the world governing of the environment, Venice, Italy**

Info: ICEF Mr A. Postiglione, ph: +39-6-6868597, fax: +39-6-683000783.

*June 9-11, 1994*

**Energy Efficiency through retrofitting, St. Petersburg, Russia**

Exhibition and conference.

Info: Norvac, ph: +47-22-601390, fax: +47-22-693650.

*June 20-22, 1994*

**Solar '94, Cuba**

Int. workshop on solar and wind.

Info: Dr. Oscar Oramas Oliva. Ph: +537-62-6606, fax: +537-33- 8054, e-mail: (altemex) driacc@ceniai.cu.

*June 21-25, 1994*

**Energy Visions, Basel, Switzerland International Exhibition.**

Info: Beat Löffler, ph: 61-6862020, fax: 61 6912024.

*June 23-24, 1994*

**Enuren '94, Rome, Italy**

Energy urban renewal: policies and technologies. Info: ICIE, ph: +39-6-8845848, fax: +39-6-8550250.

*June 23-27, 1994*

**Öko '94, Freiburg, Germany**

Environmental Exhibition.

Info: BUND, ph: +49-761-885950, fax: +49-761-8859590.

*June 27-July 1, 1994*

**World Conference on Biomass for Energy, Development and the Environment, Cuba**

Info: as Solar '94.

*June-July, 1994*

**Clean Energy Brigades, Czech Rep.**

Info: Hnutí Duha. Ph: 42-5-42210438; fax: 42-5-42210347.

*July 4-8, 1994*

**European NGO Energy Seminar, Deister, Germany**

Info: Marlies Ante, Energie- und Umweltszentrum am Deister, 3257 Springe 3, Germany. Ph: +49-5044-380/1880, fax: +49-5044- 4640.

*July 9, 1994*

**Regional INforSE Meeting for Europe, Deister, Germany**

Info: Gunnar Boye Olesen, OVE, Ph: +45-3142 9091, fax: +45-3142 9095.

July 20-August 3, 1994

**Bike demonstration for 400 young people to promote an alternative environment, Belgium, the Netherlands, Germany.**

Info: JMA, Oudegracht 42, 3511 AR Utrecht, the Netherlands. Ph: +31-30-316566; fax: +31-30-343-986.

August 1-21, 1994

**Ecotopia, Romania**

Info: EYFA, Postbus 92066, NL-1090 Amsterdam. Ph/fax: +31-20-6657743.

September 11-16, 1994

**World Renewable Energy Congress, (with ISES Europe), Reading, UK**  
Climate Change - Energy and Environment.

Info: Prof. Sayigh, University of Reading, Dep. of Engineering, ph: +44-734-318588, fax: +44-734-313835.

September 22-23, 1994

**Asia Energy Efficiency Conference & ENEX-Asia '94, Singapore**

info: Ms Irene Low, Reed Exhibition Pte Ltd; 1 Maritime Square # 12-01, World Trade Center Singapore 0409. Ph: +65-271-1013, fax: +65-274 4666.

September 26-27, 1994

**Environmental Protection in Developing Countries, Pakistan**  
Int'l conference and exposition.

Info: K. Fazal, 146-N, LCCHS, Lahore Cantt, Pakistan. Fax: +92- 42-5722147/6369502.

October 1-5, 1994

**Parallel activities to IMF/World Bank meeting, Madrid, Spain**

Info: A Hernandez, Aedenat, C/Campomanes 13, 28013 Madrid. Ph: +34-1-5411071, fax: +34-1-5717108.

October 24-27, 1994

**Third International Conference on Power Quality: End-Use Applications and Perspectives, Amsterdam, The Netherlands**

Info: mr Teus de Zwart, KEMA Transmission & Distribution, P.O.Box 9035 ET ARNHEM, The Netherlands. ph: +31- 85-566093, fax: +31-85-513683.

November 8-10, 1994

**Energy Efficiency Business Week '94, Praha, Czech Republic**

Info: SEVEN, ph: +42-2-24247552, fax: +42-2-24247597.

November 16-18, 1994

**Energy - Innovation - Revolution, Switzerland**

5th International Festival of Films on Energy Lausanne.

Info: FIFEL, p.o.box 88, CH-1000 Lausanne 9. Switzerland. ph: +93 21-3129069, fax: 93-21-3201019

January 12-October 12, 1995

**Walk Across Europe for a Nuclear-Free World 1995**

Info: For Mother Earth, Rosanne Mitchell, Zilverhof 19, 9000 Gent, Belgium. Ph: +32-9-2333268, fax: +32-9-2334924, e-mail: motherearth@gn.apc.org or Mark Stansbery, 1101 Bryden Road, Columbus, Ohio 43205, USA. Ph: +1-614-2529255, e-mail: walk@jgc.apc.org.

June 3-7, 1996

**Energex '96, Beijing, China**

The 6th International Energy Conference and Exposition.

Info: Meng Xiangan, China Solar Energy Society, 3 Huayuan Road, Beijing 100083, China. Ph: +86-1-2017009, fax: +86-1-2012880.

## Sustainable Energy Contacts - Europe update

### Austria

Global 2000 -  
Umweltschutzorganisation  
Flurschatzstr. 12, 1120 Vienna  
Ph: +43-1-8125730  
Fax: +43-1-8125728

### Czech Republic

Children of the Earth  
Ph: +42-2-3117075

### EkoWatt

Ph: +42-2-24812420  
Fax: +42-2-66710248

### Greenpeace Czech Republic

Att. Jan Winch

### Hnutí DUHA

Ph: +42-5-42210438/42212847  
Fax: +42-5-42210347  
E-m.: org.hduha@ecn.gn.apc.org

### NIKA

Ph: +42-2-257541/-257549 #212  
Fax: +42-2-254136

### SEVEN - The Energy Efficiency Center

Ph: +42-2-24247552  
Fax: +42-2-24247597  
E-m.:Hrebec.Jan@ecn.gn.apc.org

### Stop Nuclear Energy in the East European Zone SNEEZ

Ph: +42-5-42210438/42212847  
Fax: +42-5-42210347  
E-mail: sneez@gn.apc.org

### Veronica

Ph: +42-5-42210561

### WISE - Brno, World Information Service on Energy

c/o Hnutí DUHA  
Att. Erik Piper  
E-mail: erikk@ecn.gn.apc.org/  
wisebrno@ecn...

### Germany

#### BUND

P.O. Box 300251, 53182 Bonn  
Att. Onno Poppinga

#### Energiezentrum - Jugendwerkstatt

Ph: +49-5662-9497-0  
Fax: +49-5662-9497-49

#### Fördergesellschaft für angepasste Techniken in der Dritten Welt GmbH. FAKT

MO: INforSE.  
Gänsheidestr. 43, 70184 Stuttgart  
Att. Manfred Röttjes  
Ph: +49-711-2109518  
Fax: +49-711-2109555

#### Zentrum für Sonnenenergie und Wasserstoff-Forschung Baden-Württemberg ZSW

Solar, hydrogen energy research Center. Non profit foundation  
Postfach 80 11 49, 70511 Stuttgart  
Att. Helmut Böhnisch  
Ph: +49-711-7870211  
Fax: +49-711-7870100

### Netherlands

#### Working Group on Development Techniques

Int. NGO. Non profit, gives free advice on the use of RE, mainly in developing countries.  
University of Twente, P.O. Box 217, 7500 AE Enschede  
Att. B. Schulte  
Ph: +31-53-892845  
Fax: +31-53-357042  
E-mail: WOT@P58.F810.N280.  
ZZ.FIDONET.ORG

### Poland

#### Polski Klub Ekologiczny - Mazovian Branch PKE

Polish Ecological Club.  
Krzywickiego 9/7010, 02-078 Warszawa  
Att. Zbigniew M. Karaczun  
Ph: +48- -439041 #1316, -494766  
Fax: +48- -471581

### Romania

#### Prietenii Pamintului

Earth Friends. Local. NGO. 20 members. Founded 1991. Practical project, anti-nuclear and energy saving campaigns, environmental education. MO: INforSE.  
str. Siderurgistilor, bloc SD 4A, ap.12, 6200 Galati  
Att. Ion Constantin Zamfir  
Ph/fax: +40-93-457381

### Russia

#### Ecocenter GAIA

Local NGO. Environmental coordination center for Kola region. Contact to environmental groups, Exchange of information, actions, seminars, log-term projects, etc.  
Box 109, 183012 Murmansk 12  
Att. Sergey Shuvalov  
Ph: +7-815-3-16290

### Slovakia

#### Greenpeace Slovakia

PO Box 58, 81499 Bratislava 1  
Att. Lubika Trubiniová  
Ph/fax: +42-7-313 968

### Ukraine

#### IO Chernobyl Union

Att. Vladimir Shovkoshitny  
Ph: +7-044-2968695  
Fax: +7-044-2968469

### United Kingdom

#### Greenpeace - Energy Campaign

Att. Antony Froggett  
Ph: +44-71-3545100  
Fax: +44-71-6960014

**Note!** This is only a supplement to Sustainable Energy Contacts - Europe (SEN3), see this for detailed information.

## Climate Negotiations -

# The Temperature

# is Rising

by René Karottki and Rasmus Gade

Another round of negotiations on the International Climate Convention was carried out in Geneva in February, 1994. There is still a great difference in opinions between the countries on how to solve the climate problems. The problems are complex and many concerns must be taken into consideration.

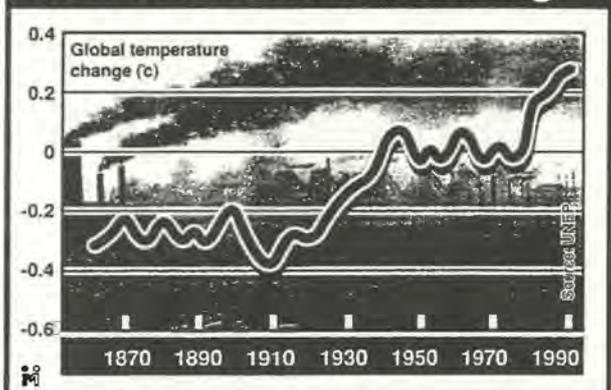
**Still the changing climate does not pay attention to just talking. New calculations on the global warming show that action must be taken now. Cutting down CO<sub>2</sub> globally is an absolute necessity.**



It is a fact that the major criminals are the industry of the Western world. Though the Western countries hesitate, when it comes to reducing domestic CO<sub>2</sub> emissions to the atmosphere, the climate problem is now recognized as such by more and more people. The Greenpeace newsletter *Climate News* says that the insurance industry now acknowledge the links between climate change and economic interests. In Barbados, venue for the UN Conference on Sustainable Development of Small Island Developing States in April 1994, climate changes have already had a bad effect on the insurance market. These islands

play an important role in the discussions, because they are indicators of changes in the global climate. The small islands may actually vanish from the face of the

### How the world is warming



earth, if the sea level increases.

Instead of reducing domestic CO<sub>2</sub> emissions, part of the Western countries want to buy themselves free, for instance by planting trees or making investments in 3rd world countries, e.g. in the energy sector. This is the so-called *joint implementation*. Most 3rd world countries resist this. They fear that these investments will benefit Western interests rather than solving problems of the 3rd world.

The Chinese, big CO<sub>2</sub> polluters themselves, fear for the consequences of tough CO<sub>2</sub> demands - the demands may come back to them as a boomerang. Oil producing countries led by Saudi Arabia do all they can to stop the Western countries from reducing their oil consumption, because this means less oil export for them.