

# SUSTAINABLE ENERGY NEWS

Newsletter for **INFORSE**, International Network for Sustainable Energy.

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**GEF-Theme**

**Environment for Europe:**

- Ministers' & NGOs' Meetings Århus'98
- Energy Conservation Guidelines
- Baltic 21

Sustainable Energy News

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**INFORSE Secretariat:**

P.O. Box 2059, DK-1013

Copenhagen K, Denmark.

Ph: +45-33-121307

Fax: +45-33-121308

E-mail: [inforse@inforse.dk](mailto:inforse@inforse.dk)

<http://www.inforse.dk/>

**International Network for Sustainable Energy (INFORSE)** is a worldwide NGO network formed at the Global Forum in Rio de Janeiro, Brazil, June 1992

**Editorial Address**

Sustainable Energy News

Gl. Kirkevej 56, DK-8530.

Hjortshøj, Denmark.

Ph: +45-86-227000

Fax: +45-86-227096

E-mail: [ove@inforse.dk](mailto:ove@inforse.dk)

<http://www.inforse.dk/>

**Editors:**

Gunnar Boye Olesen

Judit Szoleczky

Rene Karotki

Lars Yde (technical editor)

Niki Fowler (text advice)

Mads Eskesen (layout)

**Advisory Board:**

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Masse Lo, ENDA, Senegal

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Emilio La Rovere, IED, Brazil

S.Natakuatoong, ATA, Thailand

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Photo on the front page:

Environmental demonstration in front of the Pan European Environmental Ministers' Conference, Sofia '95. Photo: OVE



*EU Environmental Ministers on bicycle in Århus, 1993*

## Will Europe Choose Sustainability?

From the start of the discussions of sustainable development, it has been clear that the industrialised countries have a primary responsibility to reduce consumption. The Brundtland report speaks about a need for almost 50% reduction of energy consumption in the industrialised countries, i.e., Europe (East and West), North America, Japan, and Australia.

All major environmental NGOs have worked for a goal like this for the last decade, and numerous reports have documented not only that it is possible, but that the costs, if any, are small compared to the environmental costs of continued unsustainable development.

In this light, it is appalling to see how little has happened on the international level.

The UN still has a major organisation for promotion of nuclear power and none for renewables or for energy efficiency.

The Kyoto meeting was not successful in achieving an agreement on the greenhouse-gas reductions in industrialised countries, which are necessary for sustainable development.

And the EU countries, which were viewed in Kyoto as the progressive block, are opening the door to buying "hot air" from Central and Eastern Europe to meet their modest reduction target of 8% by 2010.

However, some progress can be seen on the international level: The countries around the Baltic Sea are about to agree upon a vision for sustainable energy that reaches further than previous international statements. The Environment Ministers of Europe and North America are about to agree upon a guideline for energy conservation, including proposals for new international cooperation in the field. Both are new developments on the international scene, respectively leading to higher goals for emission reductions and a better international framework for sustainable energy development. Both initiatives have been developed with extensive NGO participation, and will need support from the civil society to be developed into successes going beyond ministerial declarations. (See p. 10-11)

For INFORSE-Europe, it has been a major activity of the last year to follow the progress of these processes. And we intend to follow them further, in cooperation with the many other networks and organisations involved in the Environment for Europe process, culminating in the 4th Pan-European Environmental Ministers' meeting this June in Århus, Denmark. We hope that the countries will use this opportunity to go a step further than the previous agreements. If they do that, we will join the follow-up to ensure that the agreements are realized in practical international cooperation and national policy. (See p. 9)

*Gunnar Boye Olesen*  
Gunnar Boye Olesen  
INFORSE-Europe Coordinator

# Wind in GEF

## Wind Energy Projects Supported by the Global Environmental Facility (GEF)

*By Ad Dankers, UN Development Program (edited by the editors)*

Out of the 120 GEF projects that have been started since 1991, only 3 deal with wind energy. Total financing related to these activities, which consist of one pilot project (the 'old' version of a full-size project) and two project development activities, amounted to \$2.9 mill. of the GEF climate portfolio of \$ 177 mill. The three activities are being undertaken in Mauritania, Eritrea, and Kazakhstan. Further project development activities are scheduled for Panama, Ecuador/Galapagos, and Pakistan.

The ultimate objective of UNDP/GEF assistance in these projects is to reduce CO<sub>2</sub> emissions related to electricity production. Only if activities to meet this objective are carefully designed and successfully implemented, in combination with investments in wind power, is UNDP/GEF intervention fully justified.

### Wind Energy on the Coast of Eritrea

The overall objective of the project is to formulate a comprehensive national programme to remove the barriers to wind-energy projects and to the widespread adoption of wind-energy technology in Eritrea.

Financial support for the current project preparation activities comes to \$ 315,000. These activities began in mid-1997 and will run for a total of 15 months.

Activities and outputs of the current project:

- Creation of a wind-energy information system based on wind monitoring for the southern coastal region of Eritrea.
- Development of a strategy for maintenance, updating, and extension of

the wind-energy information system, at the most promising additional sites.

- Identification of technical, economic, and institutional viable wind-power projects along the Red Sea in the south of Eritrea. This includes demand forecasting and cost-benefit analysis.
- Preparation of technical concepts to connect wind generators to existing grids or to use them for off-grid applications. This requires assessment of their technical, economic, and institutional feasibility.
- Preparation of a project designed to remove barriers to wind-power generation in Eritrea and to promote its rapid deployment.

### Removing Barriers to Wind-power Production in Kazakhstan

Total available budget for this project development activity is \$481,000, of which \$131,000 is being provided by the Government of Kazakhstan as in-kind contribution. The project commenced late in 1997 and has a total time frame of 12 months. The objective of the full-scale project to be developed is to remove barriers to commercial, grid-connected wind-power production in Kazakhstan, reducing the need for new fossil-fuel-based power plants. The project is expected to achieve this by:

- strengthening institutional capacity for research, planning, and technology transfer;
- clarifying costs and various technical issues;
- demonstrating the feasibility of wind-power production in Kazakhstan and drawing the attention of potential future partners to get political and financial support for larger, commercial operations.



These project development activities will include assessment of wind power potential, a plan for involvement of key stakeholders, and description of key barriers, along with a feasibility study and financing plan for a wind-power demonstration plant.

#### Information:

See article on page no. 4, and the information box about the GEF structure and operations on page no. 5.



*The GEF has 3 projects to develop wind energy. They are in Mauritania, Eritrea, and Kazakhstan. They amount to \$2.9 million of the GEF climate portfolio of \$177 million. Photo: Vestas*

# UNDP/GEF Climate Change Activities in Africa

By Ad Dankers and Ademola Salau, UNDP/GEF (edited by the editors)

The UNDP/GEF climate change portfolio for the period 1991-1997 amounts to \$177.4 million. For Africa, 36 projects are included in the portfolio. Almost 60% of these projects are classified as "enabling" (see box) activities, 17% are within the purview of the Project Development Facility (PDF), and 22% are full-fledged projects. A selection of these activities is briefly described below.



PV used for water pumping in Eritrea (above) and in Mali (below)  
Photos: Dulas and IT Power.

## Ghana

For Ghana, enabling activities, a larger PDF, and a full project are included in the portfolio. The PDF activity led to the development of a full project, 'Renewable energy-based electricity for rural social and economic development in Ghana', to facilitate construction of renewable-energy-based electricity supply to more than 3,000 presently unelectrified communities.

## Uganda, Malawi, & Eritrea

In Uganda, Malawi, and Eritrea, enabling activities have been carried out. In Uganda, the follow-up was the development of a full project, 'Photovoltaics for rural electrification,' with the long-term objective of dissemination and use of solar photovoltaic systems in rural areas that cannot be accessed by the grid, reducing greenhouse-gas emissions from the use of kerosene and diesel. Activities started late 1997. For Malawi, plans include a larger PDF activity; 'Barrier removal to Malawi renewable energy pro-

gram'. GEF activities for Malawi are closely coordinated with other ongoing UNDP activities in the area of sustainable energy; viz. SADC FINESSE (Southern African Development Corporation - program for Financing Small-Scale Sustainable Energy Services) FINESSE and a UNDP-Lilongwe-assisted National Sustainable Energy Program.

## Zimbabwe

The 'Photovoltaics for households and community use' project in Zimbabwe was the first full project operational in Africa under the UNDP/GEF climate-change portfolio. The project, which expanded rural use of photovoltaics while assessing the technology and approaches to its promotion, will end soon. It aimed at providing a model for other African countries' efforts to develop off-grid electrification. It included measures to develop indigenous photovoltaics businesses, cooperation with the national utility, and analysis of the relevant national policies, including import duties.

## South Africa

South Africa, who has ratified the climate change convention on Friday, 29 August, 1997, is now eligible for GEF assistance. Discussions have commenced to provide assistance in the area of energy-efficient housing. Part of the activities under SADC FINESSE in South Africa also relate to energy-efficient housing, and the two initiatives will cooperate on the issue.

### Information:

- Ms. Mahenau Agha, UNDP/GEF information officer, ph: +1-212-906-6112, fax: +1-212-906-6998, e-mail: mahenau.gha@undp.org.
- Mr. Ad Dankers, UNDP/GEF Climate Change Core Unit, Ph: +1-212-906-6639 fax: +1-212-906-6998, e-mail: ad.dankers@undp.org.



# GEF Structure and Operations

Responsibility for implementing the Global Environmental Facility (GEF) is shared by the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP), and the World Bank. UNDP is responsible for technical assistance and capacity-building, along with project identification and preparation and a small grants program for NGOs.

In climate change, the overall strategy of GEF-financed activities is to support sustainable measures to minimise damages from climate change by reducing the risk, or the adverse effects, of climate change.

GEF operations span 3 broad, interrelated categories:

- *Long-term Operational Programs.*
- *Enabling activities:* inventories, analysis, action plans, assisting national communications to conventions (e.g. the development of national report to Conventions)
- *Short-term responses,* e.g. projects aimed solely at reducing net emissions of greenhouse gases at low costs.

Because "enabling" activities are the foundation for much of the GEF climate-change portfolio, they will be emphasised, initially. This focus will shift gradually to the other types of activities, mainly long-term measures.

## Operational Programs

An Operational Program is a planning framework for projects geared to achieve a global environmental objective. It organises the development of country-driven projects and ensures systematic coordination.

The Operational Programs to achieve long-term effects are:

- **Removal of barriers to energy efficiency and energy conservation.** The aim of projects in this category is to identify and remove barriers to profitable energy-efficiency and energy-conservation activities. Examples: strengthen institutions that promote energy-efficiency, improve building standards and codes, establish energy service companies, and provide limited demonstrations of energy-efficient installations.
- **Promoting the adoption of renewable energy by removing barriers and reducing implementation costs.** This operational program addresses commercial or near-commercial renewable-energy technologies. Such renewable-energy technologies include photovoltaics, the use of agricultural residues to generate heat and power, other technologies using biofuels, methane control in waste disposal, and wind power.
- **Reducing the long-term costs of energy technologies that minimize emissions of greenhouse gases.** Efforts in this program are designed to reduce the cost of prospective technologies that have not yet become widespread least-cost alternatives. This approach is well suited to proven, but less mature technologies, such as solar-thermal power generation; grid-connected and household-related solar applications; advanced biomass power and fuel technologies; fuel cells; and base-load wind power.



## UNDP/GEF Funding Windows

- **Operational programs** are long-term (3-7 years) full-size projects on a large scale (e.g. \$2 mill. and beyond).
- **The Project Development Facility (PDF)** supports the development of large-scale projects from the concept stage to fully approved project documents. There are three sizes of PDF grants: Block A, grants of up to \$25,000, supports the early stages of project formulation. Supported activities can include workshops and/or short-term consultancies for project development. Block B, grants of up to \$350,000 for project development, often fund large regional or global pre-project activities culminating in one or more UNDP/GEF Project Briefs. Block C, grants of up to \$1 million, support feasibility work on large-scale projects.
- **Medium-sized projects** undergo a streamlined project preparation and approval process for grants of up to \$1 million. Projects below \$ 750,000 have a special fast-track procedure.
- **The Small Grants Program** provides grants of up to \$50,000 for initiatives by local community groups / NGOs.
- **Enabling activities** assist countries in preparing strategies, action plans and reports that fulfil their obligations under the international environmental conventions.

## UNDP/GEF Handling of Proposals

The first step is to submit a 2- or 3-page *Project Concept Paper* to the UNDP country office. If the project is deemed eligible, application may be made for a *PDF grant*, which would support the development of a 10-15 pages *Project Brief* for review by the GEF Council. A letter of endorsement from the host government must accompany the Project Brief. The process then continues toward development of a full *Project Document*.

*Information:*

See on page number 4 and

<http://www.undp.org/seed/gef.html>

# Shanghai Attracts Conferences in October '98

**Rising expectations for renewable-energy development in China and partnership opportunities in the region have attracted 2 international conferences and exhibitions to Shanghai.**

China's economic growth is expected to increase the country's energy needs. In an attempt to moderate demand and to defend the environment, China is urging its people to reduce the use of fossil fuel as well as energy losses. The government is recognising an urgent need for advanced energy-efficient technologies and new ideas on energy. To support this, China is making efforts to revise and strengthen its major laws that pertain to energy. The government is urging lo-

cal organisations and the industry to import new ideas and technologies.

Shanghai is especially interested, because its Pudong New Area is planned to be developed in a high scale in the coming years. The new area includes several municipal projects, an airport, and 100 skyscrapers which all have a big energy demand to meet.

## October 14-16, 1998

This event is being organised by Alternative Development Asia Ltd. from Hong Kong in partnership with the Regional Institute of Environmental Technology (RIET) and the European Union (EU). RIET is a joint EU and Singapore

Initiative that works to create partnerships towards environmental best practice and technology in Asia.

The main objectives of the event is to promote the financing and marketing of renewable energy and energy efficiency in the Asia-Pacific region and between Asia-Pacific companies and the global market.

## October 20-22, 1998

This event is being sponsored by the China Energy Research Society. Its organizers include the Shanghai Commission on Energy, the Shanghai International Exhibition Corporation, and the Shanghai Chamber of Commerce.

The event is designed to be an open forum for the energy industry and a global energy information exchange. It will also help to bring advanced technologies, ideas, and solutions into China in the areas of renewable energy, energy conservation for buildings, and energy management. Key experts, decision makers, and end-users will be specifically invited from the Chinese electric power, metallurgy, chemical, building, and transportation industries to share the knowledge presented.

*Information:*

*See Event List on page no.15.*



# Joint NGO & World Bank Workshop in India

**INSEDA, INFORSE regional coordinator, initiated and organised a workshop for representatives of the World Bank and 40 NGOs involved in the environmental issues related to renewable energy and/or the power sector.**

The workshop on May 6-7, 1998 in New Delhi coincides with preparation of the final report on a 2-year World Bank study called, "*Environmental Issues in the Power Sector in India*"(\*).

The main aim of the meeting is to discuss the key findings of the study and to get feedback from the NGO representatives. The goal of the study was to reduce the adverse impact that the generation of power in India has on the environment.

The principal purpose was to improve environment planning, management, and decision-making tools, which would enable the Government of India to evaluate alternative options for power development in India.

Recognizing NGOs as important stakeholders, the study also envisaged involving them by keeping them informed about the study as it progresses, as well as by incorporating their views & feedback into the study. Unfortunately, during the first year, the involvement of NGOs was very limited. Their input came mainly through workshops, more particularly in two states namely Andhra Pradesh & Bihar, where detailed case studies were done. The involvement of

INSEDA members started in May, 1997. Since then, 80 NGOs have shared their views about the broad objectives and summarized it in a document.

(\* *The study received partial funding from each of the following: the British Development Administration, the World Bank, UNDP, the Energy Sector Management Assistance Program (ESMAP).*

*Information:*

*Raymond Myles, INSEDA, Regional Coordinator of INFORSE, 3rd floor, St. Soldier Tower, Vikas Puri, New Delhi 110018, India. Ph: +91-11-5510344, fax: +91-11-5529646, e-mail: rayinda@nda.vsnl.net.in.*

## Solar Cookers Attract Attention in Nepal

Solar-cooked food attracted many people at the exhibition in Kathmandu, Nepal on February 17, 1998.

The solar cooker and drier exhibition was a big success on a very sunny day with temperatures reaching 26 °C on February 17 in Kathmandu, Nepal. The solar-cooked food was well cooked in an hour at noon and was tasted by many people including housewives and children as well as others, old and young. The event also attracted several governmental officials, students, journalists, and international as well as national NGOs. Several companies used this opportunity to show their solar equipment.

Everybody was very excited about using the environmentally friendly de-

vice on exhibit. People who showed interest, whether in buying or in making a solar cooker or drier, were very pleased to get brochures along with manuals in English and in Nepali. Many were happy to know that the government gives a 50% subsidy for solar cookers.

The event was organised jointly by the Center for Rural Technology (CRT), a member of INFORSE, the Alternative Energy Promotion Center (AEPC), and the Liver Foundation, Nepal.



Information: Sama Shrestha, CRT, Center for Rural Technology, PO Box 3628, Tripureswore, Kathmandu, Nepal.  
Ph: +977-1-256819, fax: +977-1-225212  
e-mail: r-tech@crt.wcom.np.

## Wind Farm in New Zealand

Largest wind farm in the Southern Hemisphere, first in New Zealand

### Best Wind Conditions

Forty-eight 660-kW wind turbines will go online in New Zealand during the next year. Each will have a large rotor 47 m in diameter. The wind farm will be located on the more northern of New Zealand's two main islands, in a hilly area known as the Tararua Ranges. The area is blessed with some of the best wind conditions in the world; wind speeds at some locations there can exceed 11 m/s. So, the park's annual electricity production is expected to be almost twice as large as those of typical European sites. The wind farm will be the largest in the southern hemisphere, with a capacity equivalent to the annual electricity consumption of more than 25,000 households. The project will cost US\$ 25 million.

### Milestone - No Subsidies

Vestas - Danish Wind Technology, the supplier of the turbines, believes that this project could constitute a milestone in the development of wind power, which

thus far has been accused of only being viable with subsidies. 'The project proves that our new turbines are so effective that preferential treatment of wind power may not be necessary where the wind conditions are adequate. In this project, wind power competes on even terms with conventional power production. The project is not subsidised by government funds,' says Tom Petersen of Vestas.

Information:  
Vestas, Smed Hansens Vej 27, 6940 Lem, Denmark, Ph: +45 97 34 11 88,  
fax: +45-97-341484, <http://www.vestas.dk>

New Zealand's only wind turbine installed in 1993 in Wellington. The successful Vestas 225-kW turbine is a symbol and tourist attraction of the town. It paved the way to the order of the 48 600-kW Vestas turbines recently.  
Photo: Vestas.



## Workshop Set Key Solar Priorities

By S. Karekezi, L. Majoro and T. Ranja

**With participants from 9 Eastern and Southern African countries, the renewable energy training workshop in April in Nairobi found key priorities for applied research on photovoltaics and solar water heaters.**

AFREPREN/FWD(\*) the INFORSE coordinator for Eastern and Southern Africa, in conjunction with the Stockholm Environment Institute (SEI), is conducting a regional study under the "Renewable Energy Technologies (RETs) Applied Research and Training Program for Eastern and Southern Africa".

The objective of the RETs Applied Research study is to address technical barriers and related constraints (e.g., management, operational, etc.) to further expansion of the solar market in Eastern and Southern Africa by assessing initiatives that can lower the costs and enhance the performance of solar energy use. This will be done through applied research on key subject areas of system sizing, specifications, assessments, selection, siting, and clustering, as well as low-cost assembly and manufacturing techniques. The research study will apply reverse engineering approaches based on a detailed assessment of local manufacturing, assembly, operational, and maintenance capabilities.

On April 6-10, 1998, AFREPREN/FWD, in conjunction with SEI, conducted a Renewable Energy Tech-

nologies Regional Training Workshop in Nairobi, Kenya as part of the regional study. The workshop brought together a wide range of participants that included representatives of NGOs, governments, RETs/solar equipment distributors, field technicians, manufacturers, utilities, and, to a lesser extent, researchers and field extension workers.



PV Lantern. Photo: NAPS France.

The 5-day Workshop covered:

- Introduction of participants to key renewable-energy technologies;
- Dissemination of the findings and conclusions of the recently concluded study entitled "Renewable Energy Technologies: Research for Dissemination and Implementation";

- Review of the status and technical challenges facing the development of solar PV technologies in Eastern and Southern Africa;
- Discussions on the activities of the RETs project and insights on how the activities can be refined for maximum impact; and,
- Introduction of INFORSE: past, present, and future activities, both globally and in the region.

Participants in the Workshop were from Kenya, Lesotho, Mozambique, Namibia, Malawi, Tanzania, Uganda, Zambia, and Zimbabwe. The Workshop identified the following as key priority issues for applied research on photovoltaics and solar water heaters:

- Training on low-cost assembly and manufacturing techniques.
- Development of locally made and cheap solar energy tracking systems.
- Compilation of best regional practices/manual for system sizing and specification.
- Compilation of case examples from country testing centers for solar energy technologies.

(\*) FWD is Foundation for Woodstove Dissemination, AFREPREN is African Energy Policy Research Network.

*Information:*

FWD/INFORSE East & Southern Africa,  
P.O. Box 30979, Nairobi, Kenya.  
Ph: +254-2-566032, fax: +254-2-740524  
e-mail: skarekezi@form-net.com.

## New Partners in Solar Cooking

**Rotary Clubs and Sunstove Organization actively disseminating solar cookers.**

Based on contacts with Solar Cookers International and active members, several local Rotary clubs have taken up the dissemination of solar cookers and solar baking ovens. While the solar cookers are mainly used to reduce smoke and firewood consumption in family kitchens, the solar ovens are used in families as well as in small bakeries. Grants, primarily from US-based Rotary clubs, have helped fund solar-cooker dissemi-

nation in Kenya, Egypt, Zimbabwe, and in several Latin American countries.

The East Nairobi Rotary Club has spearheaded a project to build efficient, durable, and inexpensive solar cookers, as well as to train villagers in their use. The long-term goal of the project is to create small, local industries to produce and market the cookers, thereby creating local employment. Other cookers have been bought from the non-profit Sunstove Organization in South Africa. This organization has sold thousands of cookers to Rotary and other private organizations at cost. The cookers are then resold

for about US\$ 25 each, or they are given to local users in Africa and in Latin America.

*Information:*

- Solar Cookers International, 1919 21st Street #101, Sacramento, California 95814, USA. Ph: +1-916-455-4499, fax: +1-916-455-4498, e-mail: sbci@igc.apc.org, <http://www.accessone.com/~sbci/>  
- Sunstove Organization, PO Box 21960, Crystal Park 1515, South Africa. Ph/fax: +27-11-9692818.  
Source: The Rotarian (Magazine)

# Århus '98 Events



## INFORSE-Europe Meeting, June 26, 1998

This year, the Annual Meeting of INFORSE-Europe will take place on June 26 in Århus, Denmark. This will be the major event of the network, where all members are invited to discuss the future activities of the network and participate in the starting up of new activities.

Major points will be:

- The worldwide INFORSE Action Plan and CSD9 (INFORSE has been invited to take part in the UN discussion leading to the meeting of the Commission of Sustainable Development (CSD) in 2001.)
- Lobbying the EU.
- Future INFORSE participation in the official European Energy Conservation activities.
- Electronic Renewable Energy Education (a proposal to develop a high-level education program on renewable energy, to be distributed via e-mail and WWW).
- NGO sustainable energy strategies.
- New strategy of INFORSE.  
(Update of the 7-year-old strategy on which INFORSE is based)

All INFORSE members in Europe will be invited to the meeting directly.



## Århus '98 and ECO-Forum, June 20-26

List of energy related events at the Pan-European Environmental Ministers' meeting, 'Århus'98', including NGO events (ECO-Forum):

- *Saturday, June 20:* Opening of NGO Exhibition on environment, sustainable energy, etc.; NGO Environment and Health Workshop.
- *Sunday, June 21:* ECO-Forum Meeting, open meeting of the environmental NGOs to set a final strategy for the Ministers' Meeting, future of the ECO-Forum, meetings of the issue groups.
- *Monday, June 22:* Expert Meeting to discuss future energy conservation activities in Europe; organised by Danish Energy Agency.
- *Tuesday, June 23:* Ministerial Conference; Parallel NGO Workshop on Energy Conservation (see below)
- *Wednesday, June 24:* Ministerial Conference with NGO dialogue. Session on Public Participation in decision-making.
- *Thursday, June 25:* Ministerial Conference, energy conservation issue; Parallel NGO Workshop on Renewable Energy Internet Education
- *Friday, June 26:* INFORSE-Europe Meeting.

More information: See Event List on page no. 15.

## NGO Workshop on Energy Conservation, June 23

Parallel to the official 'Århus'98' event, INFORSE-Europe, along with the ECO-Forum's energy and climate group, will hold a workshop on NGO participation in energy conservation, including discussion of successes in sustainable energy NGO projects. The workshop will consist of:

- Presentation of successes in sustainable energy in Central and Eastern Europe.
- Presentation of new INFORSE-Europe publication on the successes.
- Discussion of future NGO work on sustainable energy success/case database and documentation.

- Presentation and debate on the official energy conservation initiative and on future activities at national and international levels.
- Discussion of NGO involvement in the future activities.
- Future activities of the energy and climate issue group.

For further information: INFORSE-Europe. See Event List on page no.15.

The NGO events will be at 'Brobjergskolen', an adult education center, (left) just on the other side of the street where the official events will take place at the Conference Center (right) in Århus.



# Guidelines for Energy Conservation

By Gunnar Boye Olesen,  
INFORSE-Europe Coordinator

For more than a year, an official process has been developing guidelines for energy conservation. Now, these efforts have produced a Whitebook and a set of guidelines for European energy conservation. These papers were approved by the UN-ECE Committee on Environmental Policy this March. They will finally be approved by the Environmental Ministers at 'Århus'98'.

## NGOs Made a Difference

By following the development of the official energy conservation initiative, we as NGOs have had large opportunities to influence the work. From the main NGO paper on the issue, "NGO Visions for a European Energy Conservation Strategy", we have developed more concrete proposals on specific issues, some of which have been adopted, e.g., the idea of a small energy/CO<sub>2</sub> tax in central and eastern European countries to raise reve-

nues for energy efficiency and renewable-energy activities. In many ways, the guideline gives a good basis for national and international energy conservation activities in Europe, and goes beyond previous international agreements in the field, e.g., the Energy Efficiency Protocol to the Energy Charter Treaty.

## Not a Perfect Result

Still, the outcome of this process could be much better. It will only be a guideline and a paper that the countries can follow; it imposes no obligations. Also, the guidelines and the whole process have put too much emphasis on the European Energy Charter, which is made for increased energy trade and has no NGO participation.

## Visionary Follow-up?

With the non-bonding guidelines almost in place, it is time to think about follow-up. From the task force that developed the guidelines come proposals of more

than 20 follow-up activities, mainly strengthening international cooperation on different energy conservation activities: integrating external costs in energy pricing, a common labelling system for energy-consuming apparatus, cogeneration of heat and power, evaluation of employment in energy transition, etc.

As NGOs we should also think of a more visionary follow-up than the officially proposed "digging down in details." We would like more renewable energy and energy efficiency to be realized.

One of the ways is to impose more binding obligations on the countries, following the lines of the present non-bonding guideline. This could be achieved after Århus'98 if this process leads up to a prime-ministers' summit, in which case energy ministers could be involved as well.

*The involved NGOs and networks (such as INFORSE-Europe) have coordinated their activities in the energy and climate group of the European ECO-Forum. To join this group, contact INFORSE-Europe at e-mail: ove@inforse.dk.*

## Baltic 21



Will ten prime ministers around the Baltic Sea go for sustainable development in June?

By Gunnar Boye Olesen,  
INFORSE-Europe Coordinator

What are the visions for sustainable development in a region of industrialised countries? This question was raised by the prime ministers of the 10 countries around the Baltic Sea when they met in 1996. Now, almost two years later, more or less clear pictures appear for the seven sectors that were analysed since then in inter-governmental discussions.

In the energy sector, the vision of the process follows a "sustainable development scenario" with phase-out of nuclear power and reduction of CO<sub>2</sub> emissions by 30% in 1995-2030. This official scenario involves increased use of cogeneration of heat and power, a shift from coal to gas, renewable energy, and an increase in energy efficiency.

The scenario includes economic growth both east and west of the former iron curtain, but by far the most growth is estimated in the eastern parts, leading to almost a closing of the income gap between east and west by the year 2030. This growth imposes additional demands for energy services, as well as increased costs. However, it is estimated that the district heat and electricity prices can be kept stable and that the overall cost of the energy supply can be reduced from 7% of GNP to 4% of GNP.

## NGOs for More Reductions

INFORSE-Europe, Friends of the Earth, and the Coalition Clean Baltic participated as NGO networks in the process.

As NGOs, we had to conclude that the "sustainable development scenario", described above, is not sufficient to support sustainable development with equal opportunities for the developing world.

## 50% vs 30% CO<sub>2</sub> Reduction

If we want sustainable development with global CO<sub>2</sub> reductions of 50% by the middle of the next century, we have to reduce the CO<sub>2</sub> emissions in the industrialised countries by 80-90% by 2050 and 50-80% by 2030. This would allow the developing countries to raise their living standards, which, even if done efficiently, will increase CO<sub>2</sub> emissions. Such a CO<sub>2</sub> reduction by industrialized nations will lead to stabilisation of the CO<sub>2</sub> concentration in the atmosphere, and will probably limit the global warming to +1°C during the next century. If the climate change is limited to this level, we will avoid the mass destruction of eco systems that more warming could bring, and only a few islanders will have to pack up and leave their flooded islands.(1)

> p.11

## High Efficiency is Solution

The official 30% CO<sub>2</sub>-reduction scenario is based on the assumption that 20% increase in energy efficiency can be achieved by 2030 for all countries, except for the industrial sectors that have higher estimates (30% reductions in the West, 50% in the East) and for electricity consumption in households, where no efficiency gain is foreseen. The last is due to an expected increase in electrical appliances, eating up the efficiency gains. Even for Western Europe, these assumptions are very conservative for the long time period between now and 2030. For Eastern Europe, it is generally agreed that the efficiency potentials are far higher. A rough estimate shows that a 40% increase in energy efficiency, instead of 20%, will yield about a 50% CO<sub>2</sub>-emission reduction rather than 30%. In the above scenario, the price for the energy efficiency measures is estimated to be about 2/3 of the cost of providing the energy. Unfortunately, the official scenario does not include detailed studies of the energy-consuming sectors. Based on other studies, it is quite realistic to assume that an energy-efficiency gain of more than 40% can be achieved by 2030 for less than 2/3 of the energy supply costs (2). With this assumption, development with a CO<sub>2</sub> reduction of 50% or more is possible at a price lower than that of the 30% CO<sub>2</sub> reduction described above, and still includes phase-out of nuclear power.

This would be a real sustainable-development vision.

Now, the officials of the ten Baltic Sea countries are discussing the recommendation to the prime ministers who will meet in June. From NGOs, we will propose that the real sustainable development vision with at least 50% CO<sub>2</sub> reduction be adopted by the prime ministers as their long-term vision.

*Info: INFORSE-Europe, Gl. Kirkevej 56, 8539 Hjortshøj, Denmark. fax: +45-86-227096, e-mail: ove@inforse.dk*

(1) With these reductions it will be possible to keep global emissions below the IPCC low-emission scenario (IS92c) and warming probably below 1°C.

(2) A good description of energy efficiency potentials can be found in the book of "Factor Four, Doubling Wealth, Halving Resource Use" Earthscan Publications, London 1997. (See issue no. 17)

## NGOs Invited, World Bank Workshop in Argentina



*The biggest windmill park in Argentina at Comodoro Rivadavia, 1997. Photo: NEG Micon*

**400 participants including NGOs were invited to the World Bank Workshop of "Renewable Energy in Rural Markets," March 25-26, 1998 in Buenos Aires, Argentina.**

The World Bank and the GEF in cooperation with the National Secretary of Energy presented their "Electricity Supply Program for the Rural Dispersed Population" (See article in issue no. 20 page 14.) It is a "leading case" for the region. The main objective was to attract to the Program institutional sectors, universities,

companies, NGOs and other potentially interested parties.

From INFORSE, Marcelo Alvarez participated who give a presentation about the NGO roles with respect to information and capacity building in emerging markets: mechanisms such as a Clearing House and Energy Offices.

*Information: Marcelo Alvarez, REJIMA, member of INFORSE, Mario Bravo 1029 piso 4 depto A, 1175, Buenos Aires Argentina. Tellfax: 54-1-963-0722, e-mail: aldarba@starnet.net.ar.*

## Repowering California

**On the North American continent, the repowering of older wind parks in California with modern technology will be a market for sale of wind turbines in the years to come.**

In 1997, NEG Micon, a Danish windmill company, embarked on 2 such repowering projects in California. 750 old turbines will be replaced with some

100 modern 750-kW NEG Micon wind turbine generators within the next two years. NEG Micon, together with some partner companies, has bought a number of Californian wind parks with a view to refurbishment and / or repowering.

*Information: <http://www.windpower.dk/news/>*

## SunDay '98 on Sunday, June 21 in Europe



**Anyone can organize a SunDay event. Everyone benefits.**

SunDay is one day each year for Europe to discover the potential of renewable energy and to celebrate the power of the sun. All events are organised locally, co-ordinated nationally via National Liaison Officers, and publicized across Europe.

The SunDay initiative of ISES-Europe, the European Unit of the International Solar Energy Society, is supported by networks of non-governmental associations, including INFORSE, as well as by trade associations, the European Union, and governmental networks.

*Information: See Event List on page 15.*

# Solar-Cell in the View



**Facade decoration, sun shade, and electricity production. These 3 are the benefits of integration of solar cells into windows. 22 solar-cell integrated windows will produce 2100 kWh/year in Denmark.**

*By: Lars Yde, Folkecenter for Renewable Energy, Denmark*

The Folkecenter just finished the construction of Denmark's first window-integrated photovoltaic system. The project was carried out in co-operation with the companies GAIA SOLAR and Midtglas, with financial support from the Danish Energy Agency.

*The table shows the technical specifications of the two solar systems at Skibsted Fjord Training Centre in Denmark.*

	Canteen wing	Training wing
Cell type	Mono crystalline	Poly crystalline
Cell dimensions (mm)	102,5x102,5	125,0x125,0
Rated power per cell	1,47 - 1,55 Wp	1,88-1,95 Wp
Efficiency (av.)	14,4%	12,3%
Number of cells	692	572
Total rated power	1045W	1095W
No-load voltage at -10 oC	229,7 V	190,2 V
Voltage at full load at 20 °C	167,8 V	135,9 V
Inverter input voltage range	125 - 250 V	125 - 250 V
Inverter nominal output	700 W	700 W
Ratio between nominal power of inverter and of solar-cells	0,67	0,64
Estimated annual production	1012 kWh	1087 kWh

## Roof vs Window

Window integration eliminates expenses for the steel frames necessary to support the photovoltaic panels when the latter are placed on the ground or on a roof. Furthermore, cases and covers become unnecessary, because the frames and glass of the window take their place. These factors reduce construction costs.

On the other hand, window-integrated solar panels must be custom-made, which increases costs. The total price for the window-integrated system was DKK 120 per W<sub>peak</sub> (20 \$US), whereas the average price for mass-produced solar panels is around DKK 40/W<sub>peak</sub> (6\$US), including supporting frames

*Windows with integrated solar cells at the Folkecenter for Renewable Energy in Denmark.*

*Photo: Jane Kruse, Folkecenter.*

and installation. The price difference is due to the fact that this new installation is the first of its kind in Denmark, and therefore incurred quite a lot of development costs. However, even if future installations will be cheaper, window-integrated systems are still going to be more expensive than mass-produced panel options.

It must be emphasized that window-integrated and ground- or roof-mounted solar panels are two very different alternatives. Window-integrated, custom-made systems offer some architectural possibilities that are not present when using standard panels.

## Architectural Integration

The solar system forms part of the glazed facade of Skibsted Fjord Training Centre near the Folkecenter. The building itself is dug into a south-facing slope, offering a tremendous view of the Fjord.

The integration of solar cells in the glazed facade of the Training Centre presented us with a basic conflict between the need for electricity production and the wish to preserve the beautiful view. Furthermore, it is important that the solar cells be like an ornament, something that enriches the facade by bringing life into the slightly dull look of a large glazed surface. The design of cell patterns must meet not only practical, but also aesthetic goals.

Clustering the cells together in a few windows would be the cheapest and simplest thing to do. This would also preserve most of the view. Aesthetically, however, it would be a bad solution, breaking up the facade in an odd way. Regarded from the outside, the best solution would be a singular pattern repeating itself for each, or for every second window. This kind of pattern unfortunately would disturb the view to an unreasonable extent.

The final solution therefore was a compromise between the two extremes: An ornamental pattern plus some windows covered with cells at places where the view is disturbed the least.

## Shadows

The importance of shadows should not be underestimated. This regards not only the shade from trees and other buildings, but especially the shade effects due to the building itself. There are shadows from eaves above the entrance as well as from the supporting wall at the eastern gable of the house. These are the most important shadows. Furthermore, there is a number of smaller, local shadows deriving from the detailing of the windows themselves.

The first kind of shadows makes certain windows entirely unsuited for solar-cell integration. The second kind mean that certain areas in each window must be kept free of solar cells. There is a left, right, and top margin in each window that is unsuited for the purpose, and hence the suitable area is limited rather radically.

## Cell Types Match

The task now was to match the architectural ideas with the electrical possibilities. This proved to be a long process entailing

a lot of compromises. From the start of the project, there was a wish to combine round and square cells, and cells of different colour, e.g., mono- and polycrystalline. Because of the necessary wiring in each window, this idea was soon abandoned. It would not have been a pretty sight with all the tinned copper strips inevitable in connection with such combinations. The final solution distributes the cells on 12 and 10 windows for the two wings, respectively.

The rated output of 1045 and 1095 W<sub>peak</sub>, respectively, may seem a little high for an inverter of 700W. However, this is not the case. This is due to the fact that the system will very seldom produce its maximum output, and that a better overall efficiency is achieved by choosing a smaller inverter. A 700W inverter thus works at a higher efficiency at an output of, e.g., 100W, than would a 1000W inverter.

## Perspectives

There is no doubt about it: The architects are going to love this new possibility for

**Mono crystalline cells** consist of one big crystal, forming a totally uniform black or bluish black surface.

**Poly crystalline cells** are made up of a lot of small crystals. Light can sparkle across the crystalline structure of the resulting surface. Therefore, the poly crystalline cells are by far the more beautiful ones, whereas the price per Watt is about the same for the two types.

decorating glazed surfaces. They produce renewable energy in the form of electricity, and at the same time limit the often too intensive solar exposure. We must only hope that the price will drop to a level where also house constructors will find window-integrated solar cells attractive as well.

*Folkecenter for Renewable Energy, Kammersgaardsvej 16, Sdr. Ydby, 7760 Hurup, Thy, Denmark.  
Ph: +45-97 95 66 00,  
fax: +45-97 95 65 65,  
e-mail: larsydefcenergy@www.nvn.dk.*

# World Wind-Power Market Growth Continues

## Steady Increase

Global megawatt (MW) installed capacity increased by 25 % to a total of 7,636 MW by the end of 1997. In 1997, a total of 1,566 MW of new capacity was sold, an increase of 21 % over 1996.

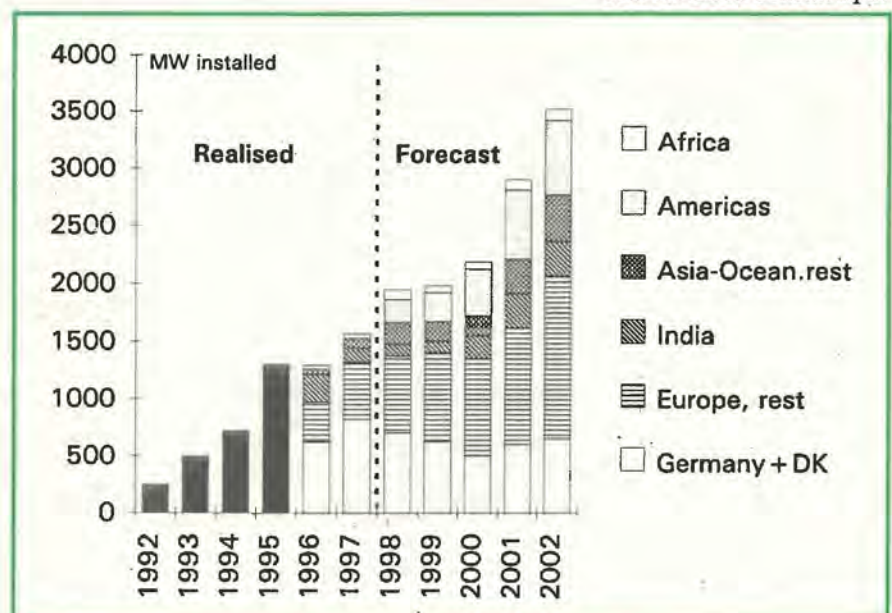
It is expected that the boost will continue in the years to come. The five-year forecast predicts some 12,600 MW of new installations in the period from 1998 through 2002. This forecast represents a cumulative sales value - 5 years ahead - of 12 billion USD (1997 price level).

## Top Ten

Ten manufacturers supplied 90 % of the new wind capacity installed in 1997. The 'Top Ten' is led by Danish companies NEG-Micon, Vestas, Bonus, and the German Enercon. This year, three Spanish companies (Made, Desarrollos, Gamesa) and a US company (Zond/Enron) advanced to the list.

*Information: World Market Update, BTM Consult ApS. I.C. Christensens Alle 1, 6950 Ringkøbing, Denmark.  
Ph: +45-97-325299, fax: +45-97-325593  
e-mail: btmcwind@post4.tele.dk and  
http://www.windpower.dk/.*

*Annual installed new wind power capacity worldwide 1992-97 and forecast 1998-2002.  
Source: BTM Consult ApS.*



## Sustainable Energy Contacts - Europe Correction

### Slovakia

Foundation for Alternative Energy FAE  
INFORSE - EUROPE Coordinator  
PO Box 35, 85007, Bratislava.  
Att. Emil Bedi  
Ph/fax: +421-7-836-964  
E-mail: bedi@bratislava.telecom.sk

List of additional contacts missing in the February 1998 list in Sustainable Energy News no. 20.

### Belgium

Climate Network Europe CNE  
42 rue de Taciturne, 1000 Bruxelles  
Att. Liam Salter  
Ph: +32-2-2310180  
Fax: +32-2-2305713  
E-mail: canron@gn.apc.org

### Czech Rep.

EkoWatt  
Renewable Energy Center. NGO, consultancy, energy conservation.  
Bubenská 6, 170 00 Praha 7  
Att. Jiri Beranovsky  
Ph: +420-2-66710247  
Fax: +420-2-66710248  
<http://www.ecn.cz/eng/organ/ekowatt/>  
E-mail: ekowatt@ecn.cz

### France

HELIO International, GEO  
NGO. R&D. Monitors national & international energy systems.  
56, rue de Passy, 75016 Paris  
Att. Helene Connor  
Ph: +33-1-42245148  
Fax: +33-1-42248633  
E-mail: helio@globenet.org

### Netherlands

European Youth For(est) Action EYFA  
Int. NGO. Publish VERGE. Youth network. Organizes Ecotopia.  
Postbus 94115, 1090 GC Amsterdam  
Ph: +31-20-6657743  
Fax: +31-20-6928757  
E-mail: eyfa@antenna.nl

World Information Service on Energy WISE-International.  
NGO. Anti nuclear network, news.  
PO Box 59636, 1040 LC Amsterdam  
Att. Dirk Banning, H. Linnebank  
Ph: +31-20-6126368  
Fax: +31-20-6892179  
E-mail: wiseamster@antenna.nl  
<http://antenna.nl/~wise>

### Norway

Norges Naturvernforbund  
FOE Norway. Local. Alternatives to hydro-, nuclearpower.  
PObox 6891, St. Olavs pl., 0130 Oslo  
Att. Dag Arne Høystad  
Ph: +47-22-993300  
Fax: +47-22-993310  
<http://www.grida.no/ngo/naturv>  
E-mail: naturvern@naturvern.no

### Poland

Climate Network Central & Eastern Europe, Polish Ecological Club, Local. Nat. NGO.  
Pl Zamkowy 10/II P, 00-277 Warszawa  
Att. Zbigniew Karaczun  
Ph: +48-22-8-312830  
Fax: +48-22-8-312830  
E-mail: karaczun@alpha.sggw.waw.pl

### Russia (CIS)

Ecodefense - Anti Nuclear Campaign, Baltic Region, WISE  
Nat. NGO. E-mail Info.  
Moskovsky prospect 20-34, 236006 Kaliningrad  
Att. Vladimir Sliviak  
Ph: +7-0112-437286  
Fax: +7-0112-437286  
<http://cci.glasnet.ru/koi/seu/antinuc/>  
E-mail: ecodefense@glas.apc.org

Nuclear Policy Center of Socio Ecological Union SEU  
Ul Krupskoy 8-1-187, 117311 Moskva  
Att. Ilya Popov  
Ph: +7-095-131-70-12  
Fax: +7-095-131-70-12  
E-mail: seulydia@glas.apc.org

### Yugoslavia

Green Table  
Nat. NGO.  
Krunska 78, Beograd  
Att. Dusan Vasiljevic  
Ph: +38-11 457 463  
Fax: +38-11 453 146  
<http://come.to/the.green.table>  
E-mail: greentbl@eunet.yu

### Slovenia

Slovenian E-Forum  
Nat. NGO. Energy & Ecology  
Dimiceva 12, 1113 Ljubljana  
Att. Andrej Klemenc  
Ph: +38-61-1888473  
Fax: +38-61-1888473  
<http://www.ljudmila.org/retinal/>

### United Kingdom

Centre for Alternative Technology CAT  
RE, energy savings, visitors, consultancy, publications, courses.  
Machynlleth, Powys, SY209AZ, Wales  
Att. Roger Kelly  
Ph: +44-1654-702400  
Fax: +44-1654-702782  
<http://www.foe.co.uk/CAT>  
E-mail: help@catinfo.demon.co.uk

Friends of the Earth FOE-EW&NI  
Climate & Energy, 26-28 Underwood Street, London N1 7JQ  
Att. Ute Collier  
Ph: +44-171-5661671  
Fax: +44-171-4900881  
E-mail: utec@foe.co.uk

International Institute for Energy Conservation, IIEC - Europe  
Int. NGO. Publish "E-notes".  
31 Pitfield Street, London N1 6HB  
Ph: +44-171-490-7616  
Fax: +44-171-490-7626  
<http://www.iiec.org>  
E-mail: iiec.europe@dial.pipex.com

## Publications:



### Human Ecology, Human Economy - Ideas for an ecologically sustainable future.

Basic concepts, case studies, and policy directions. Case studies include: greenhouse response in the energy sector, impact of energy use, urban transport, ecologically sustainable development in Australia.  
Edited by Mark Diesendorf and Clive Hamilton.  
Book, 378 pages, 1997.

Contact: Allen & Unwin, 9 Atchison str., St. Leonards NSW 2065 Australia. Ph: +61-2-9901-4088, fax: +61-2-9906-2218, <http://www.allen-unwin.com.au>.



### - Acidification Air Pollution: Still with Us.

Book, 94 pages, 1997.

### - For Cleaner Air - It will pay to reduce acidifying emissions

-Leaflet, 8 pages, gratis, 1997

### - Sex, Sulphur and a Fishy Business

Video, 58 minutes, gratis, 1997

The video is scheduled for showing on TV in Sweden and Norway. Its aim: "shaking up viewers and again getting one of our greatest environmental catastrophes (acidification) high up on the political agenda".

Contact: The Swedish NGO Secretariat on Acid Rain, Box 7005, 40231 Göteborg, Sweden. Ph: +46-31-105590, fax: +46-31-711-46220, e-mail: christer.argen@srf.se.



### Stepping Towards Sustainability in Energy: Practical proposals for Europe.

Report of the findings of EASE, "Energy Alternatives for a Sustainable Europe" campaign, which held 25 seminars on energy issues across Europe. Organisations from 8 European countries worked together on the project.  
Main report (English) £20, 1997.  
Summary report (English), 24 pages, £5, 1997.  
The Summary report is available in Danish, Dutch, English, Finnish, French, Georgian, German, Italian, Lithuanian, Spanish, and Ukrainian.

Contact: John Green, Friends of the Earth Scotland, 72 Newhaven Road, Edinburgh EH6 5QG, Scotland.  
Ph: +44-131-554-9977, fax: +44-131-554-8656,  
e-mail: foescotland@gn.apc.org,  
<http://www.foe-scotland.org.uk/>



### Climate Protection Policies: Can we Afford to Delay?

The report is about the Climate Protection Initiative, which is a partnership between WRI and private firms to identify acceptable policies for achieving strong climate protection goals.  
By Duncan Austin.  
Report, 38 pages, \$9.95, 1997.

Contact: World Resources Institute, 1709 New York Ave., NW, Washington, DC 20006. USA.  
Ph: +1-202-638-6300, fax: +1-202-638-0036,  
<http://www.wri.org/wri/climate/>.



### Environmental Issues

No.1: Environmental taxes, No.2: Climate Change, No.3 Environmental Agreements, No.4 Local Authorities.  
Reports, each 60 pages, each 10 ECU, 1996-98.

Contact: European Environment Agency, Kongens Nytorv 6, 1050 Copenhagen K, Denmark. Ph: +45-33 367100, fax: +45-33 367199, e-mail: eea@eea.dk, <http://www.eea.dk/>.

# Events

## ★ Event with INFORSE participation

June 8-10, 1998

### International Workshop on Combined Heat and Power and District Heating, Copenhagen, Denmark

Info: Danish Energy Agency, Amaliegade 44, 1256 Copenhagen K, Denmark.  
Ph: +45-33926700, fax: +45-33114743,  
e-mail: ens@ens.dk, <http://www.ens.dk>.

June 8-11, 1998

### Biomass for Energy and Industry, Würzburg, Germany

10th European Conference, Exhibition  
Info: WIP, Sylvesterstr. 2, 81369, München, Germany. Ph: +49-89-7201235,  
fax: +49-89-7201291, <http://www.wip.tnet.de>.

June 18-22, 1998 \*

### 1st International Workshop on Media, Environment and Citizens, European Film Collage, Ebeltoft, Denmark

Info: INFORSE Secretariat, PO Box 2059, 1013 Copenhagen K, Denmark. Ph: +45-33121307,  
fax: +45-33121308, e-mail: [inforse@inforse.dk](mailto:inforse@inforse.dk),  
<http://www.inforse.dk/media>  
See article on page number 16.

June 21, 1998

### SunDay'98

Info: Julie Belsten, c/o Franklin Company, 192 Franklin Road, Birmingham, B30 2HE UK.  
Ph: +44-121-4594826, fax: +44-121-4598206,  
e-mail: [SunDay@tfc-bham.demon.co.uk](mailto:SunDay@tfc-bham.demon.co.uk),  
<http://www.demon.co.uk/tfc/sunday.html>.  
See article on page number 11.

June 23-25, 1998 ★

### Environment for Europe, 4th Pan-European Conference of Environment Ministers (Århus'98), Århus, Denmark

Info: Danish Environmental Agency, Strandgade 29, 1401 Copenhagen K, Denmark.  
Ph: +45-32660295, fax: +45-32660296,  
<http://www.mst.dk/aarhus-conference>.  
See article on page number 9.

June 20-26, 1998 ★

### Parallel NGO Events to Århus'98, ECO-Forum '98 Århus, Denmark

Meetings, exhibit, INFORSE workshops  
Info: OVE/INFORSE-Europe, Gl. Kirkevej 56, 8530 Hjørtshøj, Denmark. Ph: +45-86-227000,  
fax: +45-86-227096, e-mail: [ove@inforse.dk](mailto:ove@inforse.dk),  
<http://www.ljudmila.org/retina/eco-forum>  
See article on page number 9.

June 26, 1998 ★

### INFORSE Europe Meeting, Århus, Denmark

Info: INFORSE-Europe - See above.  
See article on page number 9.

June 22-26, 1998

### Solar Thermal Techn., Odeillo France

Info: CNRS/IMP BP 5 Odeillo, 66125 Font-Romeu Cedex, France. Ph: +33-4-6830-7758, fax: +33-4-6830-2940, e-mail: [claudie@imp-odeillo.fr](mailto:claudie@imp-odeillo.fr).

July 1, 1998

### Closing Barsebäck Party, Copenhagen, Denmark

Antinuclear movement celebrating the closing of the first Barsebäck Reactor  
Info: OOA, Ryesgade 19, DK-2200 Copenhagen N, fax: +45-31356545, e-mail: [ooa@email.dk](mailto:ooa@email.dk).

July 6-10, 1998

### 2nd World Conference & Exhibition on PV Solar Energy Conversion

Wien, Austria  
Info: See at event June 8-11.

July 6-10, 1998

### 1st World Congress of Health and Urban Environment, Madrid, Spain

Info: TILES A OPC, S.L. c/ Londres, 17, 28028 Madrid, Spain. Ph: +34-1-3612600,  
fax: +34-1-3559208, e-mail: [tilesa@wpa.es](mailto:tilesa@wpa.es).

July 27-31, 1998

### 1st International Energy Conference in Armenia, Yerevan, Armenia

Info: Zohrab Melikyan, Armenian Chapter of the Association of Energy Engineers, str. Tigran-Mets 29a, ap 52, 375018, Yerevan, Armenia.  
Fax: 3742-277531, e-mail: [rma@arminco.com](mailto:rma@arminco.com).

July 28-31, 1998

### Hydro Vision '98 Reno, Nevada, USA

Exploring Our New Frontiers Conference and Exhibition  
Info: 410 Archibald St. STE 100, Kansas City Missouri 64111-9716, USA. Fax: +1-816-9312015

August 23-28, 1998

### Energy Efficiency in Buildings, Pacific Grove, California

Info: ACEEE, American Council for an Energy-Efficient Economy, 1001 Connecticut Avenue, NW Suite 801, Washington, D.C. 20036, USA.  
Ph: +1-202-429-0193, fax: +1-202-4290193,  
[www.aceee.org](http://www.aceee.org).

September 2-4, 1998

### Switch on to Wind Power, Cardiff University of Wales, UK

British Wind Energy Annual Conference  
Info: BWEA, 26 Spring str. London W2 1JA, UK  
Fax: +44-171-4027107, e-mail: [bwea@gn.apc.org](mailto:bwea@gn.apc.org).

September 14-17, 1998

### EuroSun'98 ISES-Europe Solar Congress, Exhibition, Portoroz, Slovenia

Info: E-NET - Centre for Efficient Use of Energy, 1000 Ljubljana, Ambrozjevtrg 5, Slovenia.  
Ph: +386-61-1729284, fax: +386-61-1729283,  
e-mail: [e-net@siol.net](mailto:e-net@siol.net).

September 20-25, 1998

### WREC '98. Florence, Italy

World Renewable Energy Congress  
Info: A.A.M. Sayigh, World Renewable Energy Network, 147 Hilmanton, Lower Earley, Reading RG6 4HN, UK. Ph/fax: +44-118-961-1364/-1365.

October 6-8, 1998

### EEBW '98, Prague, Czech Republic

6th Energy Efficiency Business Week International Conference & Exhibition  
Info: SEVEN, Slezska 7, 120 56 Prague 2, Czech Republic. Ph: +420-2-24247552, fax: +420-2-2424-7597, e-mail: [seven@ecn.cz](mailto:seven@ecn.cz),  
<http://www.ecn.cz/seven>.

October 8-9, 1998

### Information Technology for Renewable Energy, Birmingham, UK

Info: Julie Belsten, See at event June 21, 1998  
e-mail: [ifs@tfc-bham.demon.co.uk](mailto:ifs@tfc-bham.demon.co.uk),  
<http://www.demon.co.uk/tfc/ifs.html>.

October 14-16, 1998

### REAP '98, Shanghai, China

Renewable Energy & Energy Efficiency Asia-Pacific Conference & Exhibition  
Info: ADA, Alternative Development Asia Ltd., 1406 Leader Commercial Building, 54-56 Hillwood Road, TST, Kowloon, Hong Kong.  
Ph: +852-2574-9133, fax: +852-2574-1997,  
e-mail: [office@adal.com](mailto:office@adal.com), <http://www.adal.com/>.  
See article on page number 6.

October 20-22, 1998

### Renewable Energy & Energy Conservation for Buildings, Shanghai, China

Conference & Exhibition  
Info: Rm. 1322, Bldg. 3, 1486 Nanjing Rd. (W), Shanghai 200040, P.R. China.  
Ph: +86-21-62479796, fax: +86-21-62049481,  
e-mail: [wjyao@online.sh.cn](mailto:wjyao@online.sh.cn).  
See article on page number 6.

November 2-13, 1998

### COP 4, Buenos Aires, Argentina

Info: UNFCCC, PO Box 260124, 53153, Bonn Germany. Ph: +49-228-815-1000, fax: +49-228-815-1999, e-mail: [secretariat@unfccc.de](mailto:secretariat@unfccc.de).

November 18-20, 1998

### Sustainable Energy Forum, Meetings of INFORSE-Argentina & ASADES

Info: REJIMA Mario Bravo 1029 piso 4 depto A, 1175, Buenos Aires, Argentina. Tel/Fax: 54-1-963-0722, e-mail: [aldarba@starnet.net.ar](mailto:aldarba@starnet.net.ar).  
See article in issue no. 20 on page 14.

November 26-27, 1998

### 6th Int. Symposium on Renewable Energy Education, New Delhi, India

Info: TERI, Darbari Seth Block, Habitat Place, Loghi Road, New Delhi, 110 003, India.  
Ph: +91-11-462-2246, fax: +91-11-463-2609,  
e-mail: [akmisra@teri.res.in](mailto:akmisra@teri.res.in),  
<http://www.teriin.org/program/isree6.htm>.

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## Getting the Message Across



### 1st International Workshop on Media, Environment, and Citizens, June 18-22, 1998

The first-ever global workshop on "Media, Environment, and Citizens" will bring participants from all continents to Denmark as the first step of a proposed five-year programme.

The initiative is aimed at bridging an ever-widening gap between the people at the cutting edge of environmental work and the people who report on it.

### World-wide Collaboration

The host of the workshop is INFORSE. Participants will represent the media, NGOs, governments, and other organizations. The workshop is being organised in co-operation with UNESCO (United Nations Educational, Scientific, and Cultural Organisation).

One set of questions to be raised is:

- What responsibility do the media have to report on environmental concerns and developments?
- Is there a public service obligation and a duty to educate?

- How can those who work with the environment gain access to the communicators?
- How can the popular imagination be fuelled?

### Yet another thread:

- How can environmental workers use new technologies to communicate better?
- What status do environmental themes have in today's onslaught of information?

### And another:

- The newer media allow the dissemination of insight and information. How can they be best used to share global knowledge at a local level? What specific tools can be developed? This area includes educational tools for young people and adults.

Lots of questions. The objective of the Workshop is to find answers and to foster the development of practical skills as well as to show how media and environmental workers can co-operate without sacrificing their respective needs and interests. The ultimate goal is to give local citizens a global voice.

The 1st International Workshop on Media, Environment, and Citizens, June 18th-22nd, has been timed to take place just before the Pan-European Conference for Environment Ministers. The workshop which will be held at the European Film College in Ebeltoft, provides an opportunity for voices from the grassroots to be heard.

*More information: INFORSE Secretariat (see address on page 2.)*