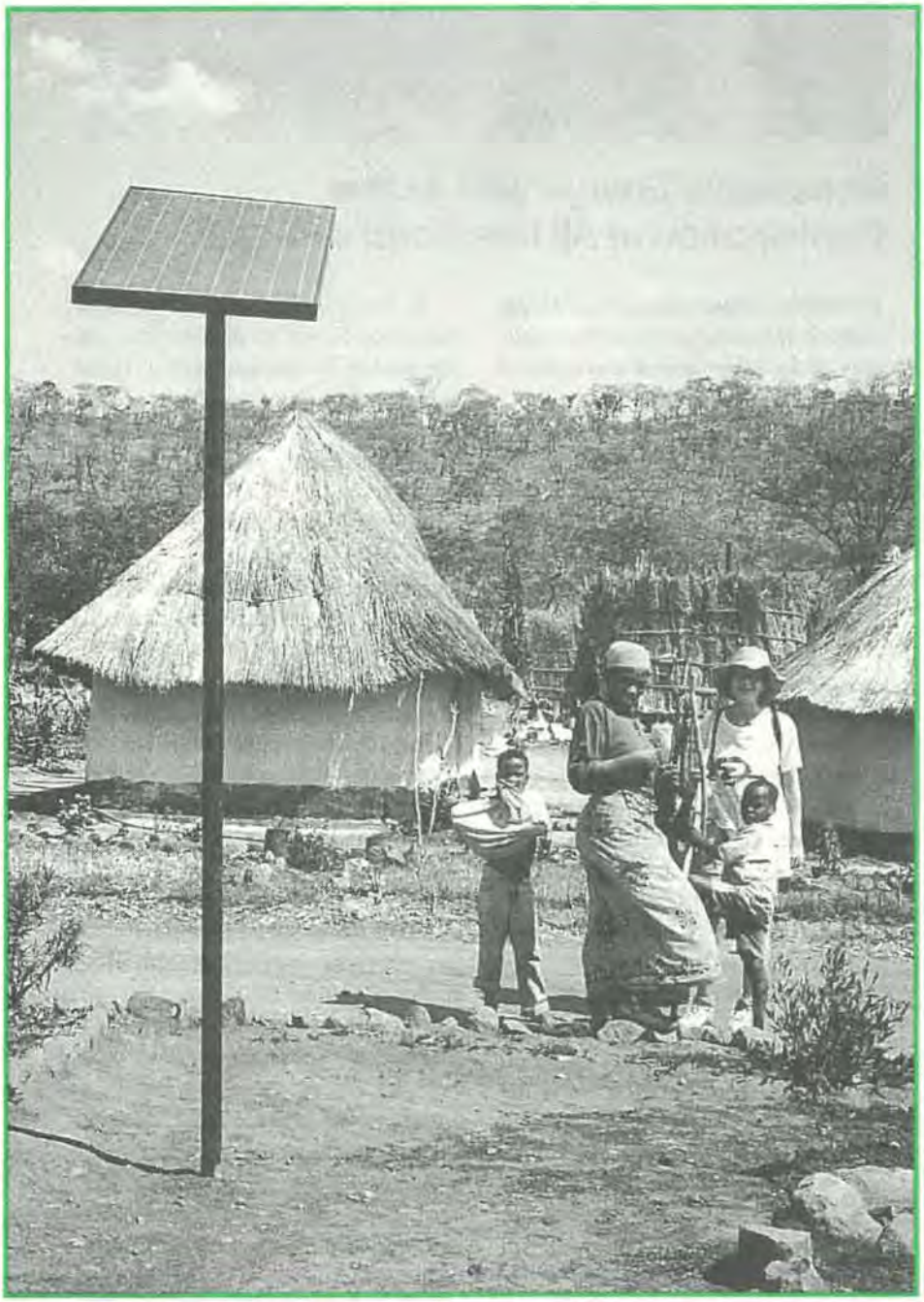
Sustainable Energy News

No. 15 November 1996

Newsletter for the International Network for Sustainable Energy

- INFORSE



INFORSE

International Network for Sustainable Energy

ISSN 0908 - 4134

Sustainable Energy News

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

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Deadline for next issue: 15.01.97
Next issue: February 1997

The newsletter is quarterly. Feel free to use the information in the newsletter, but please state the source.

Annual subscription rate:
DKK 100 (approx.US$ 20)
plus bank cost at check & transfer DKK 50 (approx.US$ 10).
The newsletter is free of charge to NGOs as long as possible.

Sustainable Energy News is sponsored by: Forum for Energy and Development, Denmark.

Renewable Energy with Active Participation of All the World's People

INFORSE Statement to the World Solar Summit. It was submitted to the chairman of the Solar Summit and included in the minutes of the Summit.

Thank you, Mr. Chairman, for this opportunity to speak on behalf of INFORSE, an international network of more than 150 non-governmental and community-based organizations (NGOs and CBOs) from around the world. Collectively, we have many years of hands-on experience in the development and dissemination of solar and other renewable energy technologies throughout the urban and rural South and North. Our comments are derived from a bottom-up process to which we as NGOs are committed. They are gathered from the inputs of many people and organizations through regional preparatory meetings around the world and from a series of workshops here in Zimbabwe, just prior to this World Solar Summit.

1. Among the most important lessons we have to offer here in Harare is that, while many renewable energy technologies have reached maturity, technology alone cannot provide answers to pressing global problems. Technology is only a valuable tool when it is in the hands of fully empowered people who wisely use the resources available to them for the benefit of all living things.

2. The Solar Summit has created an important forum to discuss the vast potential of Renewable Energy Technologies (RETs) for developing countries. However, it should be remembered that the excessive use of energy in industrially developed countries is what continues to drain the world's fossil fuel resources, continues to create global inequalities and catastrophic climate change, which impacts developing countries most adversely. It must be made clear that the northern over-developed countries should take the lead in adopting their own sustainable energy policies, by drastically cutting their energy consumption and increasing their reliance on renewable sources of energy.

3. The past decade has proved that many renewable energy technologies are now fully competitive with fossil fuels and will be more competitive in the future, especially when the full social and environment costs of technologies are entered into the equation. In order to achieve wide scale dissemination, the focus in the next decade should be less on technology and more on building the organisational infrastructure necessary to deliver these technologies where they can best be of use and to those most in need. This includes development of locally-based forms for ownership, finance, operation, and maintenance, as well as vi-

Front page: Solar Village in Zimbabwe near Harare.
See article on page no 7. Photo by Gunnar B. Olesen.

able micro-enterprises and cooperatives. NGOs must play a major role in this development to maximize its success.

4. While market development is an important element of a strategy for renewable energy, experiences show that the market only reaches the relatively well-off who are able to pay the up-front purchase costs. If renewable energy is really to meet the needs of the poor, a range of alternative and community based approaches need to be developed. Recent experience from many countries, including Senegal, South Pacific, India, and Denmark, can point to a number of models worthy of consideration.

5. Some speakers have suggested that solar technologies are simply an intermediary technology: a kind of place holder until the grid can be established, tying all the world together by wire and poles. We suggest that the grid may well be outdated, just as cellular phones are rapidly making telephone poles and wiring a thing of the past. Instead of waiting for 50 years to get the benefits of electricity, the rural majority in many developing countries will be able to bypass the grid phase and experience energy independence based on local sources of renewable energy.

6. Global and national energy policies and programs should emanate from the varied social and economic needs of the end-users of energy services, such as the need to cook food, pump water, light homes and schools, and provide engine power for a host of different purposes. Access to these energy services should be universal and secured from renewable resources without destroying the environment, based on the most energy-efficient practises and technologies available.

7. Energy is a cross-cutting issue, bridging several sectors such as agriculture, health, water supply, education, industry. All sectors of society are consumers of energy and should be the targets of energy efficiency and renewable energy programmes. As such, energy must be fully integrated with social and environmental concerns and steer clear of narrow minded sectoral approaches and short-term solutions. As women's lives are most heavily impacted by changing energy technologies, women must be engaged in every level of energy planning and decision-making.

8. While renewable energy holds great promise for rural areas, particularly for water and electric supply to reverse desertification and to promote arid land development, they are equally important for densely populated urban areas. This goes for technologies such as passive solar design of houses, solar cookers, solar water heaters, biofuels and biogas, and small scale hydro and wind energy applications.

9. In its focus on renewable energy for rural areas, the Solar Decade should recognize that a most immediate and urgent energy problem is energy for domestic purposes of cooking and water supply, both in urban and rural areas, as well as gardening and micro-industrial development. Better management of tree resources, improved access to fuel wood, more efficient stoves and charcoal production processes, as well as solar cookers and biogas plants are important elements in alleviating these problems.

10. Education, training, and awareness are crucial elements in a sustainable energy development strategy. In addition to integration of renewable energy into the curricula of universities as well as technical, secondary, and primary schools, a strong emphasis on non-formal education is needed. Non-formal education includes local awareness activities and community training. It incorporates local cultural traditions, attitudes, and skills. Non-formal educational activities provide a framework for mobilizing local resources and local participation in energy programmes.

11. In summary, Mr. Chairman, this statement reflects the experiences of many, many NGOs from all over the world, involved in renewable energy development for several decades. The lessons gained from these experiences are crucial to the success of the Solar Decade and the World Solar Programme. We urge the Governments, the Regional Solar Councils, and the World Solar Commission to ensure that NGOs and community based organizations become fully involved in the planning and implementation of the World Solar Programme. Even more significantly, we all must realize that a country and region cannot be developed on a project-by-project basis, but only through comprehensive energy policies and strategies that are fully integrated into existing national as well as regional industrial development policies and plans. We recommend that NGO and CBO input be actively sought and fully considered in developing and implementing these plans.

We look forward to ongoing cooperation and involvement in all renewable energy planning, so that in 2005, we can all look back at a successful Solar Decade: a decade that transformed renewable energy from playing a marginal to a central role in the global energy balance, based on the active participation of all the world's people.

INFORSE Coordinators' Meeting in Harare. (left to right, up to down): Secou Sarr (Africa), R.Myles (Asia), Masse Lo (Africa), E. Bedi (Europe); R. Karottki (Secr.), N.Petringa (Secr.), M.Hubbard (N.America), T.Ranja (Africa); G.B.Olesen (Europe), S. E. Ladefoged (Secr.) E. La Rovere (L.America). *(See on page 2 &16).*

Solar Summit, More Heads Than Results

At the World Solar Summit, Harare, September 16-17, 19 Heads of States and 39 other ministers, mainly from developing countries, as well as many others, talked about the large prospects and needs for renewable energy, especially in developing countries. After all this high-level support for renewable energy, it will be hard to argue that the developing countries are not in favour of renewable energy in their development. No Head of State, and only a few ministers from the North participated.

The official outcome of the Summit was the *"Harare Declaration on Solar Energy and Sustainable Development"* and an outline of a *"World Solar Programme 1996-2005"*. The Declaration gives a high-level support for increased use of renewable energy and recognizes the important roles of NGOs and women in the development and implementation. Further it invites the World Solar Commission, with 16 Head of States to lead the development of the World Solar Programme in co-operation with all nations.

Unfortunately, the World Solar Programme was not ready for the Summit. Only an outline of the World Solar Programme was adopted, in which it is foreseen that the World Solar Commission will finalize the Programme within 9 months.

NGO Participation

While INFORSE participated strongly in the Summit, with workshops before the event, NGO-newsletters in English and French during the meetings, exhibition etc., only a few other NGOs were active there.

INFORSE will continue to seek influence on the ongoing Solar Summit Process with the development of the World Solar Programme, which is planned to be ready by June 1997. After the Summit, INFORSE was invited by UNESCO to participate in the development of the *"World Solar Programme 1996-2005"*. This includes submitting proposals to projects on capacity building and awareness as well as liaising with the World Solar Commission and act as oberserver during its meetings.

Coordinator's Meeting '96 - New Plans

For the 1996 INFORSE Coordinators' Meeting, seven of the nine coordinators along with three representatives of the INFORSE Secretariat, gathered in Harare in September before and after the World Solar Summit.

A number of new initiatives were planned (see the boxes), a new logo was approved (see the photo and the front page), and a number of cooperation-projects were planned among the regions, e.g., transfer of biogas technology from India to West Africa.

The activities of the regions and of the Secretariat were discussed, including the issue of funding (see boxes on this and the next page). Besides, the Sustainable Energy News, the new INFORSE homepage, and the follow-up of the Solar Summit were discussed.

Rene Karottki and Secou Sarr at the INFORSE booth in Harare at the Solar Summit Exhibition. The new logo was chosen by the coordinators on the meeting.

INFORSE is Now Accredited by GEF

INFORSE is now accredited by the Global Environmental Facility (GEF), and the Secretariat has discussed NGO activities with the GEF for some time.

At the Coordinators' Meeting '96, it was considered that we should give a higher priority to GEF, lobby for more NGO projects in GEF, including regional projects, and coordinate political inputs to GEF.

The INFORSE Secretariat can also discuss individual GEF projects with INFORSE member organizations.

INFORSE Facilitates Fundraising But Not Channel Funds

At the '94 Coordinators' Meeting, it was decided that INFORSE should work on fundraising for NGO activities on sustainable energy. This was discussed again at the '96 Coordinators' Meeting. Here it was decided that the Secretariat should not channel funds to NGO-activities. Its function will be to facilitate cooperation between Northern and Southern INFORSE member organizations that would like to cooperate on a common project, or between an INFORSE organization and a donor. In addition to bringing the partners together, the facilitation could consist of help with applications and guiding the partners to the right donor(s).

More Information: INFORSE Secretariat (see page no. 2) or at the Coordinators (see back page)

Collection of Success Stories to INFORSE Database

Based on the large interest in previous collections of sustainable-energy databases (e.g., the INFORSE Campaign Paper to the Social Summit,) it was decided at the Coordinators' Meeting '96 to start a new collection of sustainable-energy success stories.

The collection of success stories will primarily be made by the regional coordinators. The Secretariat will make a database and/or report with the success stories. Special priority will be given to success stories from the INFORSE members' projects and to examples that include empowering users and local communities.

All proposals for success stories are welcomed. Send them to the nearest regional coordinator or to the Secretariat. You will be contacted regarding the necessary details.

INFORSE Takes Leading Role at the UNESCO Conference on Adult Education

By Natascia Petringa, INFORSE

INFORSE has been asked by UNESCO to take a leading role on the conference's theme six: *"adult learning and the environment"* as mentioned in Sustainable Energy News 13.

The focus of INFORSE activities in this area will be to promote non-formal adult training and capacity - building in the area of environment and sustainable/renewable energy development. This will include decentralised, participatory, and non-formal educational strategies involving adult communities.

Several INFORSE members are participating in the Regional Preparatory Conferences as well as in the Conference itself. The INFORSE Secretariat is preparing a series of activities for this Conference.

In addition, some INFORSE organisations such as the Integrated Sustainable Energy and Ecological Development Association (INSEDA), Instituto de Ecologia e Desenvolvimento (IED), and ENDA-TM, are developing regional project proposals on sustainable energy awareness, information, and training.

The INFORSE members' strategy is built on community and village-based approaches for renewable/sustainable energy technology dissemination and implementation.

INFORSE organisations are devoted to creating greater awareness and access to information, promoting formal and non-formal training courses, North-South and South-South exchange courses, developing pedagogical material, and carrying out studies, seminars, and workshops.

Why NGOs?

The fact that education and training in sustainable energy is necessary is well accepted, but who is best suited to carry out such activities?

NGOs and CBOs are in an ideal position to communicate and facilitate the needs and views of local communities, co-operate with them, and act as an effective intermediary for the public and private sectors. They work in closest proximity to local communities, and hence are able to assess needs and disseminate information. NGOs ensure that grassroots needs and experiences are communicated to and taken into account within centralised administrative structures.

Environment and energy are cross-cutting issues which transcend sector divisions. Hence, sustainable energy development cannot occur in a vacuum. An integrated approach that takes into account agriculture, food processing, human health, etc., is imperative. This is an innovative approach that NGOs can develop further and can put into practice. Acknowledging the potentials of NGOs in developing, implementing, and evaluating renewable energy technology (RET) programmes must be given a higher priority in the future.

In this issue, we start reviewing adult educational possibilities in the field of sustainable energy (see pages 12-13)

Overview of the Process:

Preparatory Conferences:

Asia & Pacific:
16 - 18 September, Jomtien, Thailand
INFORSE contacts: Chanchai Limpiyakorn, Appropriate Technology Association, Thailand, fax+66-2-434-3252;
Raymond Myles, INSEDA/INFORSE-Asia

Africa:
14-18 October, Dakar Senegal
INFORSE contacts: Masse Lo, ENDA - Energie/INFORSE West Africa;
Max Mapako, Biomass Users Network, Zimbabwe, email: mmapako@harare.iafrica.com

Europe & North America:
12-13 December, Barcelona Spain
INFORSE contact: Emil Bedi, FAE/INFORSE-Europe

Latin America & Caribbean:
22-24 January '97, Brasilia Brazil
INFORSE contact: Emilio La Rovere, IED/INFORSE Latin America

Arab States:
Venue not confirmed. No INFORSE contact

Main Conference:

5th International Conference on Adult Education
July 14 - 18, Hamburg, Germany
INFORSE contact: INFORSE Secretariat

(See addresses of INFORSE regions on back page, of Secretariat on page 2)

Africa

Biomass Users Network Strives for Biogas

With an investment of about 5,000 Zimbabwe$ (500 US$), a family can get a biogas plant, which will supply it with gas for light and cooking, if the plant is fed with a mixture of cow-manure and water, and manure is available from at least one cow per family member.

The Biomass Users Network (BUN) in Zimbabwe has worked for efficient production and use of biomass in rural areas since its establishment in 1989.

One of the activities of BUN is promotion of biogas plants. It has facilitated some of the 150 family-size biogas plants that have been established in Zimbabwe. These are similar to Chinese and Indian models.

In spite of the big biogas potentials from the manure of the large number of domestic animals, the introduction of biogas plants has not been as fast in Zimbabwe as in many other countries, e.g., India. The cost of a biogas plant is relatively high, equal to one year's income for a family. Unlike the GEF Solar Project in Zimbabwe there is no loan scheme to support the development. Within the GEF Project, users can get a three year loan with low interest rates to buy a solar home system.

The progress is also impeded by limited knowledge of the technology among the rural population and, in some cases, a lack of water to mix with the manure.

BUN also promotes larger biogas plants, efficient stoves, briquetting of crop-waste for cooking fuel, and oil production from the Jatropha curcas tree for fuel. It publishes the newsletter "Biomass News".

More information:
Biomass Users Network (BUN), P/Bag 7768, Causeway, Harare, Zimbabwe. ph+263-4-793395, fax+263-4-793313, email:mazdavid@harare.iafrica.com.

New Electricity Grid in Southern Africa

In December, 1995, the Southern African Power Pool was designated as a framework for cooperation and construction of new power lines within the Southern African Countries and Zaire. This is foreseen to increase the electricity trade in the region in terms of hydropower from Mozambique and Zaire as well as coal power from South Africa.

The present electricity production in the region is creating severe environmental problems, not the least in Eastern Transvaal in South Africa. There, six large coal-fired power plants are causing some of the most polluted air in the world as well as acid rain in the region. This could be reduced with the construction of new hydropower plants, e.g., the proposed Batoka hydropower station on the Zambezi river in Zimbabwe, but this proposal is very questionable because of its large environmental impacts on the river. Another proposal is to use the huge hydropower potentials of Zaire, which in principle could supply the entire region with electricity. As part of this last proposal, more than 4,000 km of additional high-voltage DC power lines are proposed to connect the Inga Falls with a potential of 44,000 MW hydropower on the Zaire river with South Africa.

Source: "Energy & Environment," July-August 1996, a newsletter published by ZERO (regional environment organisation), P.O. Box 5338, Harare, Zimbabwe, ph:+263-4-791 333.

Africa

Solar Electricity to South Africa

In South Africa, only half of the population is connected to the electricity grid. With the aim of supplying most of South Africa with electricity, the Directorate called "Energy for Development" envisions a combination of grid-extension and solar PV electrification. The areas for solar electrification covers about 20% of the population, or 2.5 million households. A new business plan proposes a massive installation of solar electric systems in these areas:

- 1,800 health clinics supplied with PV electricity by the year 2000;
- 15,000 schools supplied with PV electricity by 2005; and
- 1.1 million homes supplied with solar home systems by 2015.

After these targets are reached, the development should continue to cover the rest of the clinics, schools, and homes not connected to the grid.

More information: Energy for Development Business Plan, Directorate Energy for Development, Department of Mineral and Energy Affairs, att. J.A. Opperman, South Africa.

Largest Solar Village

One of the largest "solar villages" in Africa is situated at the River Estate near Shamva in Zimbabwe, 70 km from Harare. The village of 52 families was built as a training village, where farmers and their families learn commercial farming in a five-year practical training programme. They also learn to use the 26 solar home systems. Each system is shared between two families each of whom has two lamps and a connection for radio or a small television. The systems have worked satisfactorily in the first year of operation.

More information: Development Aid for People to People (DAPP), PO Box 4657 Harare, Zimbabwe.

Photo: The 'solar village' in Zimbabwe. Each of the 26 systems consists of a 80 Watt PV, a battery, a controller, and 4 lamps, 2 for each family.

Asia

New NGO Projects Proposed in India

Following the INFORSE Central Asia Workshop, of May 29-31, a number of INFORSE organizations in India have been developing NGO projects promoting many sustainable energy solutions.

The projects will give a new thrust to implementation of sustainable energy solutions in India and in the other Central Asian countries, and will make maximal use of NGO experiences.

The core proposals represent 25 projects for promotion of renewable energy systems and energy conservation in rural areas by information, training, dissemination, and demonstration. Among the objectives of the proposals are to make selected villages self-sufficient in energy, to support village-level economic self-reliance by reducing needs for external resources, and to improve the living conditions, especially for women. The strategy to achieve this is to use information and establishment of demonstration equipment to motivate as well as organise self-help groups and community-based organisations (CBOs) for collective action in promotion of renewable energy sources. The technologies that will be promoted are solar cookers, solar dryers, solar lanterns (Low-energy lamp with build-in rechargeable battery and small, external solar cell), solar water heaters, biogas plants, smokeless cook stoves, energy plantations (fast-growing fuel wood species), treadle pumps, and bullock-driven agricultural equipment. Among the expected results of the projects are a 30-40% reduction of reliance on non-renewable energy sources by the families involved and a 50% reduction in the costs of intensive agriculture. The latter will be achieved by shifting dependency on external inputs to locally available renewable resources, including biogas slurry. The 25 proposals are being developed by 25 NGOs within the INSEDA (Integrated Sustainable Energy & Ecological Development Association).

A project has been proposed to disseminate information, build awareness and provide training on a regional scale. It will include the members of INFORSE Central Asia and INSEDA. The courses will primarily prepare local trainers. In addition, a regional project has been proposed to disseminate the Shramik Bandhu biogas plant (see Sustainable Energy News no. 14 regarding this new type of biogas plant).

All of the proposals have been forwarded to the UNESCO Secretariat for the World Solar Commission, which is developing the World Solar Programme (WSP). Proposals like these could improve the WSP considerably, as they are based more on needs and field experiences, and less on top-down ideas, than the current 300+ proposals in the draft WSP of the World Solar Summit. Various other funding opportunities are being considered for the projects as well.

More Information: INSEDA, INFORSE Central Asia (see back page).

Asia

New Energy Plan for the Philippines

By Pedro S. de Leon, Philippines

The 1996 - 2025 Philippine Energy Plan aims to attain the three-pronged goal of availability of energy supply; affordable, reasonable energy prices; and, socially as well as environmentally benign energy infrastructures. To pursue the above goals, the Energy Plan includes the following policies:

- Enhance energy self-sufficiency through exploration, development, and exploitation of indigenous resources (including fossil fuels);
- diversify sources of both local and imported energy;
- pursue large-scale utilization of new and renewable sources;
- provide reliable and efficient supplies of electricity and of petroleum products;
- promote conservation and efficient use of energy;
- encourage greater private-sector investment and participation in all energy activities;
- promote the adoption of environment-friendly energy systems;
- integrate social and environmental concerns in the planning and implementation of energy programs and projects; and
- develop an energy information system for planning and decision-making processes.

More information: Pedro S. de Leon, Pangasinan State University, College of Engineering, Urdaneta, Pangasinan 2428, Philippines. Ph: +63-75-568-2040, fax: +63-75-568-2556.

The geothermal energy potential is huge in the Philippines. See articles in issues no. 11 and no. 8.

North America

New Bill is Expected to Support Sustainable Energy in California

In a remarkable open and intense debate with public sessions, a Conference Committee of the California Legislature has developed and approved an electricity restructuring legislation.

The new Bill is expected to support sustainable energy development without incurring extra costs for households as some restructuring programmes have done. The main points of the Bill are:

- a nonbypassable charge to fund energy efficiency, renewable energy development, and low-income services, as well as research, development and dissemination (RD&D) equal to about 2.7% of revenues or 0.3 US cent/kWh (see table below);
- substantial rate reductions for residential consumers, who have the greatest difficulties buying cheap electricity on an open market;
- operation of the transmission grid of California by a nonprofit Independent System Operator;
- explicit assurances against cross-subsidization between different consumer classes; and
- simultaneous phased-in access to alternative power suppliers for all consumers, starting on January 1, 1998, with protection against abusive practices, and with direct consumer access to renewable-energy producers.

More information: Nemiah Stone, California Energy Commission, 1516 9th Street, Sacramento, California 95814, USA. Fax: +1-916-654-4420, and http: //www.ca.gov/.

Minimum funding of the large utilities in California (80% of production) according to new Bill.

Energy Efficiency:	872 million US$/year
Renewables:	500 million US$/year *
RD & D :	188 million US$/year
Low Income Program:	324 million US$/year
Total:	1,985 million US$/year * = 2.75%* of revenue

* *approximate figure.*
The figures are based on revenues at the 1994 level.

Long rows of wind turbines in Altamont, California, established in 1984-85.

Oil Company TOTAL Enters the Solar Market

By Britta Schmidt, Solélec, Guadeloupe

Solélec Caraïbes, a subsidiary of the group TOTAL, the second largest French petroleum company, is now entering the South/Central American and Caribbean solar photovoltaic market.

Solélec has been headquartered in Guadeloupe, French West Indies since 1984, and since 1995 has had branch offices in Martinique, Guyana, and Haïti. It is specialised in the design, installation, maintenance, and provision of training for photovoltaic systems, electrification of homes vaccine refrigerators, airport and waterway beacons, telecommunications, and water-pumping systems.

Together with the Region of Guadeloupe, the EDF (Electricite de France) and the ADAME, (French regional Agency for the Environment and Energy Conservation), Solélec has successfully initiated and carried out a program which allows it to provide electricity to otherwise isolated areas. Essentially, Solélec functions as a utility company, requesting payment for electricity used.

Guadeloupe, an island with 420,000 inhabitants, has seen an explosion in the development of renewable energies. Currently, it boasts an installed capacity of 1 Mega Watt peak (1,000,000 Wp in other words 20,000 panels) in solar photovoltaic electricity. 1,000 homes of 600 to 1,000 Wp power are outfitted with solar energy. In 1996, 3.6 kWp have been installed on Guadeloupe, Martinique, and French Guayana. *(shortened and edited by editors)*

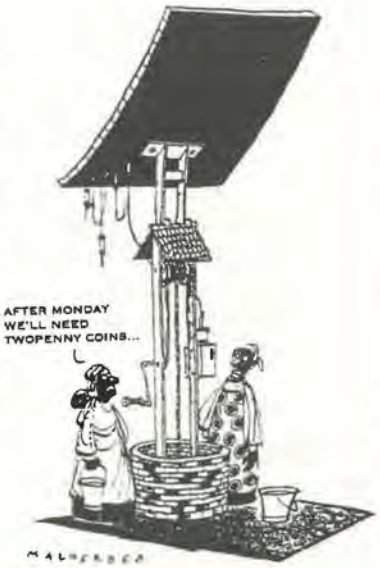
More information: Solélec Caraïbes, 41 rue Henri Becquerel 97122 Baie-Mahault, Guadeloupe. Ph/fax:+1-590-267879/-267448, email: solelec@outremer.com

SUNCASH is a new product developed by TOTAL Énergie that facilitates the collection of payment from the user of the solar installation in isolated areas.

The user pays the local "agent", (which could be a local food shop owner) a certain amount of "days" of energy. The amount of payment (connection, rental, maintenance) is specified in a contract with the supplier. The agent provides a code which the consumer enters on the numerical keyboard located on a box at his installation. A display permanently shows the remaining days. Green, orange, and red indicators attract the user's attantion reminding when does it expires and when he has to return to the local agent to purchase another amount of days.

The number of unit bought by the consumer (days for isolated sites, kWh for grid connections, or m^3 for pumping applications) can be varied, depending on the financial capability of the consumer.

The SUNCASH eliminates the need for cards, keys, and/or coins which traditional systems required in the past. It also eliminates the need of labor for the collection of payments due. It increases the price of a system with less than 200 US$, or about 25% of the price of a 45 Wp solar home system.



An 80-m^2 solar panel system installed by Solélec in October, 1996 at the national monument, the citadel "La Ferrière", in Haïti. The total installed capacity is 7 kW. The restoration of the citadel built in 1820 is supported by the Ministry of Culture, the UNDP, and UNESCO.

Europe

Closing Dutch Reactor

In a surprise announcement on October 3, the Dutch Board of Electricity Producers (SEP, the highest electricity board) announced that the closure of the 27-year-old, 50-MW Dodewaard nuclear reactor is slated for March 1997 instead of for the year 2004 as originally planned. From this date, the Netherlands will only have one nuclear reactor operating.

This decision was welcomed by many. Even the Minister of Environment De Boer praised the decision. Wijers, the Minister of Economic Affairs, said, "Such a decision is only logical, taking into account the political and social forecasts for nuclear power." The decision has widely been interpreted as a victory for, and a result of, the long-standing anti-nuclear resistance.

Since 1980, the plant has been the symbol of resistance against nuclear energy in the Netherlands. A large number of demonstrations and blockades have taken place around the reactor.

On November 2, a celebration party in front of the reactor took place. Preparations are made for a larger gathering in March when the reactor is finally closed.

More information: LAKA Foundation, Ketelhuisplein 43, 1054 RD Amsterdam, Holland. Ph:+31-20-6168294, fax:+31-20- 6892179, email: laka@laka.antenna.nl.

New EU Strategies

The *European Union (EU) directive on electricity markets will probably be formally approved* at the EU Energy Ministers' Council on December 3 of this year. It is currently the subject of a hearing in the EU Parliament, to which NGOs, including EUROSOLAR and the INFORSE member APERE, have given some input. One of the NGO proposals suggests more favorable conditions for renewable energy producers who can feed electricity into the grid.

Following the EU Commission's White Paper on Energy, the Commission is developing a *new strategy for renewable energy* to replace the current ALTENER programme, which ends by the end of 1997.

A new set of guidelines for the Ttrans-European Energy Networks (TENs) is being drafted. The new list of proposals will probably include a project for developing the natural-gas connections between Norway, Denmark, Sweden, Finland, Russia, and the Baltic States.

First Nuclear Regional Referendum in Russia

On December 8, 1996, the population in the Kostroma District of Russia will have a chance to vote on whether or not they want a nuclear power plant (NPP) constructed in their region. A local environmental group, *"In the Name of Life,"* has collected enough signatures on the issue to call for a referendum. The question that the people will be asked is: *"Do you agree with the siting and construction of the nuclear power plant in the Kostroma district?"*

This is the first regional referendum of its kind in Russia, and as such is an historic test case. If successful, it could begin a series of similar referendums around the country, which could block the future development of nuclear power stations in Russia.

According to the Kostroma Energy Efficiency Fund, the energy-saving potential of the regions is 20%, equal to 3 million KWh of power supply. The proposed NPP would provide 2 million KWh. The investment in the energy-saving is smaller and also more profitable than it is in an NPP.

More information: Eduard Gismatullin, Greenpeace Russia, Moscow. Ph/fax: +7-095-9783173/-2519088 email: gis@green2.greenpeace.org.

New NGO Groups for Environment for Europe

At the recent NGO meeting *"Towards Sustainability in Europe; ECOs Cooperation from Sofia to Aarhus,"* the NGO activity around the Environmental Ministers' Conference in Sofia, 1995 was evaluated, and new groups were formed to follow the next steps of the *"Environment for Europe"* process leading up to the Environmental Ministers' Conference in Aarhus, 1998.

The new NGO issue groups are:

- A group on public participation. It will follow ongoing negotiations towards a European Convention on Public Participation in Environmental Decision-making.
- A biodiversity group to follow the European Biodiversity Strategy.
- A group to follow the work on the Environmental Action Plans For the Central And Eastern European Countries.
- An energy and climate group.
- A traffic group.
- A group on consumption issues.
- An Agenda -21 group.
- A group on economic instruments to reduce environmental problems.

Renewable energy & energy efficient housing are important parts of the new European Energy Conservation Strategy.

Energy & Climate Group

The 'Energy and Climate Group' will follow the development of the European Energy Conservation Strategy and other energy issues of the Environment for Europe Process. Presently, the group consists of eight NGO representatives. The coordinators are Gunnar Boye Olesen of INFORSE - Europe and Toni Vidan of Green Action Zagreb. The group is open to interested NGO representatives, and will primarily communicate via an e-mail list.

More information: INFORSE - Europe.

Compressed Earth Blocks for North & South

By Willem Oskam, Holland.

New Mobile Compressing Machine Developed

The new model of a mobile machine to compress earth blocks raised high interest at the Habitat Conference in June. In October, the Minister of Housing of South Africa and the Habitat UN Commission of Low-Cost Housing visited the exhibited machine in the main square of Amsterdam. It is being considered as a tool to implement the building plan of 1 million low-cost houses over the next 5 years in South Africa.

The first prototype of the mobile, light manufacturing mechanism was constructed by OSKAM in 1982 in Holland. In 1996, a newly developed, much more cheaper and more reliable machine produced high quality compressed earth blocks for 24 houses in Denmark.

100-200 Times Less Energy

It uses 100-200 times less energy than producing bricks and concrete. The machine makes 200 blocks on one liter diesel fuel. The capacity of one machine is 2,400 blocks per day, enough for a low-cost family house. Because of the high (5-6 N/mm^2) bearing capacity of the earth block walls, the building methods can be kept very simple. A simple roof construction can be fitted directly on the walls.

Cool in Summer

Its ability to regulate humidity is one of the strongest points of the material. It gives indoor comfort and in tropical regions, air-conditioning is not necessary. Earth blocks are equally bad conductors and insulators. The houses feel cool in the summer and warm in the winter. The walls hold the temperature steady for long periods of time.

Produced on Building Site

Clay and earth are commonly available materials. The producer of the blocks can communicate directly with the builder, because the blocks are produced on the building site.

This method of building can establish the link between people's needs and their capacities in many other ways than the mere financial. The cost of the building process can also be kept within the local means.

Building Process

The fertile topsoil is removed and the subsoil, in most places containing clay, that is necessary to the binding, is spread out and dried in the sun. Then it is collected and stored in a dry place. The soil has to be tested for its binding capacity, and in some cases mixing of different clays is necessary for a good binding. The machinery for processing blocks in a continual process can be operated by three persons.

Pulverizing, mixing, and pressing takes place at the same time. In one end, the raw earth is taken into the pulveriser. From here it is fed into a mixer, where eventually sand and fine gravel are added, depending on the composition of the earth. (Generally the clay content is less than 20%.) A small amount of water is added and then the earth is pressed into uniform blocks at a rate of 5 blocks per minute. After drying for 14 days, the blocks can be used for building.

Worldwide Solution

The immense housing shortage of the over-populated part of the world causes social unrest and health problems. The earth-blocks building technique is an ancient one that yields other economic and social benefits along with new low-cost housing. The earth-blocks technology raises hopes of a worldwide solution to humanity's basic need for housing because it is:

- low in cost,
- minimal in its use of energy,
- decentralized production is done on the building site,
- a way to decrease unemployment by creating self-employment, and
- method that uses locally available material, eliminating import.

More Information: OSKAM V/F, Opperduit 66, 2941, AL Lekkerkerk, Holland. Ph/fax: ÷ 31-180-663998/-664380.

Compressed Earth Block:

Weight: 7.4 kg
Size: 29.5 cm x 14.0 cm x 9.0 cm
Thermal conduction coefficient (λ) = 1.13 W/mK
Thermal accumulation capacity (Cw) = 0.56 KWh/m^3 K
Vapour diffusion resistance (μ) <10
Compressive strength (σ) = 5-6 N/mm^2 or 8-12 N/mm^2 with 3-6% cement
Sound insulation, 40cm wall : 56dB
Thermal conductivity, 40 cm wall (R) = 2.8 W/m^2 K meaning that a wall of 40 cm has a 10% lower thermal loss and a delay of 10 hours.

Publications

Solar Heating in Cold Regions
A technical guide to design and production of solar installations in cold regions of developing countries.
By Jean-Francois Rozis & Alain Guinebault. French & English editions, 1996, p.167, £9.95
Contact: Intermediate Technology Publication Ltd. 103-105 Southhampton Row, LONDON WC1B 4HH, UK. Plymbridge Distributor: Ph/fax: +44-1752-202301/-202331.

Tubular Plastic Bio-Digester: Design, Installation & Management
Edited by Timothy E. Simalenga, Bo Gohl, FARMASEA, a regional programme by SIDA and executed by FAO. p. 29, 1996.
Contact: FARMESA, Farm-level Applied Research Methods in East and Southern Africa, PO Box 3730 Harare Zimbabwe.

Energy Play
Do-It-Yourself Models, Games & Experiments based on the principles on which renewable energy based devices work. p. 164, GEDA File Urjapatra Periodical of issue Jan-Dec 1995.
Contact: Hema Patel, GEDA, Gujarat Energy Development Agency, Suraj Plaza II, 2nd floor, Sayajiguni, Vaddodara 390 005, Gujarat, India. Ph/fax:265-330858/-333120.

Utilities and Energy Efficiency
Energy utilities and the Government in relation to the energy efficiency and renewable technologies in seven European countries and the USA.
The Main Report edited by Th.G. Potma, P. Boersta. p. 80, 1996.
Contact: International Centre for Environmental Technology, Nikkelstraat 15 4823 AE Breda, Holland. Ph/fax: +31-252-544793

Negawatt Power
The Cost & Potential of Electrical Efficiency in Western Europe
Energy Policy in the Greenhouse Volume II Part 3B, 1995
Contact: Florentine Krause, Int. Project for Sustainable Energy Path, IPSEP, 7627 Leviston Ave, El Cerrito, CA 94530, USA.. Ph/fax: +1-510-525-7530/-4446, email:ipsep@igc.apc.org.
http://www.igc.apc.org/eic/IPSEP.html

Solar Elecric Systems for Africa
A Guide for Planning and Installing Solar Electric Systems in Rural Africa
By Mark Hankins, Energy Alternatives Africa (EAA). Published by AGROTEC Zimbabwe & Commonwealth Science Council UK. Revised edition, June 1995, p 140.
Contact: EAA see KARADEA p. 13.

Climate of Hope: New Strategies for Stabilizing the World's Atmosphere
By Christopher Flavin & Odil Tunali, Wooldwatch Paper nr. 130, June 1996, p 84. $5
Contact: Worldwatch Institute, 1776 Massachusetts Ave., NW, Washington, DC 20036-1904 USA.
Ph/fax: +1-202-452-1999/-296-7365, email: wwpub@worldwatch.org.

Selling Solar: Financing household solar energy in the developing world
Report based on a workshop in October 1995. 15 pages.
Contact: The Pocantico Conference Center of the Rockefeller Brothers Fund, 200 Lake Road Pocantico Hills, New York 10591, USA.

Internet Sites

Alternative Energy Sources, A 10-week Course on Internet
25 lectures & homework. Starts in Jan.1997. http://zebu.uoregon.edu/1996/ph162/ co.html

World Directory of Renewable Energy Suppliers and Services
Published by James & James Science Publisher. 6000 companies, organisations from about 100 countries
http://www.cf.ac.uk/uwcc/engin/Mechanical/dir.html

EREN - Energy Efficiency & Renewable Energy Network
By US Department of Energy
Long lists with links to US based organisations. EREC Clearinghouse, Educational section with text files. Alphabetical listing of sites with links.
http://www.eren.doe.gov:80/RE/

Go Solar ! Beginner's guide to solar electricity In English & French by Brian Huebner. http://ourworld.compuserve.com/homepage/bhuebner

Opportunities & Resources for Research and Activism in Energy & Envitronmental Science & Policy
Personal Introduction by Daniel Kammen, USA. Opinions, several links to resources, directories.
http://www.wws.princeton.edu/faculty/kammen.html

Email Discussion Lists

Alternative Energy Discussion List
Intend to provide a a forum to discuss the current state of the art and future directions of alternative energy sources that are renewable and sustainable.
To subscribe: Send command:
subscribe ae <name> <name>
To e-mail address:
listserv@sjsuvml.sjsu.edu
The owner of the list: Clyde R. Visser
Email: cvisser@ucrmath.ucr.edu

International Association of Solar Energy Educators
Open to all. Low volume list . It reminds to meetings, conferences with more international perspective.
To subscribe: Send command:
add IASEE-L <your name>
to e-mail address:
kblum@prehp1.physik.uni-oldenburg.de
The owner of the list: Konrad Blum

Bioenergy Mailing List Archive
650 messages from 1994-96.
http://solstice.crest.org:80/renewables/bioenergy-list-archive/

Events

*** Event with INFORSE participation**

November 28-29, 1996
Energy 21-Sustainable Energy Opportunities & Agenda 21, Scotland UK
Info: J. Green, Fiends of the Earth Scotland. Ph: +44-131-5549977, fax: +44-131-5548656, Email: foescotland@gn.apc.org.

December 5-6, 1996
Controlling Carbon & Sulphur, Int. Investment & Trading, London UK
Info: The Royal Inst. of Int. Affairs, London, UK. Ph/fax:+44-171-9575700/ -9575710.

December 3-7, 1996
Workshop on Renewable Energy Applications, New Delhi, India
Info: Centre for Science & Technology of the Non-Aligned and Other Developing Countries, New Delhi 110003 India. Ph/fax: +91-114645134/-4644973, email: nams&tct@giasdl01.vsnl.net.in.

December 15-17, 1996
4th Int. Energy & Env. Conservation Symposium, Islamabad, Pakistan
Info: National Conservation Center, Islamabad, Pakistan. Ph/fax: +51-9206005/ -9206003, email: symposium@enercon.sdnpk.undp.org.

January 6-10, 1997
3rd Int. Conf. on Solar Cookers Use & Technology, Tamil Nadu, India
Info: Rajammal Devadas, Avinashilingam Deemed University, Coimbatore 641043, India. Ph/fax: +91-422-440140/-438786.

January 8-10, 1997
Passive & Low Energy Architecture, Kushiro, Japan
Info: Secretariat, PLEA 1997 Kushiro Conference. Ph/fax +81-33798-5122/-5130.

January 13-19, 1997
Techn. Exchange of Solar & Biomass Energies, Haikou City, China
Info: Song Yuhua, DCAST, No 13, Block 4, People South Road, Chengdu 610041, China. Ph: +86-28-5541487, fax:+86-28-5212250.

January 22-24, 1997
Energy & Economic Growth Is Sustainable Growth Possible? New Delhi, India
Info: Dr Leena Srivastava, Tata Energy Research Institute, Habitat Place, Lodhi Road, New Delhi 110 003 India. Ph/fax; +91-11-462-2246/-1770.

February 3-7, 1997
Hydro Centenary, Hyderabad, India
1st Int. Conference on Small Hydro
Info: C.V.J. Varma, Int. Assoc. for Small Hydro. CBIP Building, Malcha Marg, Chanakyapuri, New Delhi 110021, India. Ph: +91-11-3015984, fax: +91-11-30116347, email: cbip@cbipdel.uunet.in.

February 4-7, 1997
R'97 - Recovery, Recycling, Re-integration, Geneva, Switzerland
3rd Int. Congress with Exhibition, languages: English, French, German.
Info: EMPA, Xaver Edelmann PO Box, CH-9001 St Gallen. Ph/fax: +41-71-300101/-300199.

February 17-20, 1997
The Gulf Show, Middle East Alternative Energy Exhibition, Abu Dhabi, United Arab Emirates
Info: PO Box 5546, Abu Dhabi United Arab Emirates, Ph/fax: +971-2-446900/-446135.

March 3-5, 1997
Int. Conf. & Exhibition on Village Electrification through Renewable Energy, New Delhi, India
Info: CASE, level 3, 81 St Georges Terrace, Perth Australia. Ph/fax: +619-321-7600/-7497, email: case@wantree.com.au.

March 6, 1997
World Energy Efficiency Day, Stadthalle Wels, Austria
Info: O.Ö Energiesparverband, Landstr. 45, 4020 Linz Austria. Ph:+43-732-6584-4380, Fax: +43-732-6584-4383, email: esv1@esv.or.at.

April 7-8, 1997
Biomass & Energy Crops, Cambridgeshire, UK
Info: ADAS, Arthur Richwood Mapal, Ely, Cambridgeshire CB6 2ABUK. Ph/fax: + 44-1354-692531/-694488.

April 7-18, 1997
6th Int. Course on implementation of Wind Energy, Petten, Holland
Info: Frans Van Hulle, Netherlands Energy Research Foundation, ECN, PO Box 1, 1755 ZG Petten, Holland. Ph/fax: +31-224-564274/-563214, email:vanhulle@ecn.nl, http://www.ecn.nl.

May 25-28, 1997,
The 8th Global Warming Int. Conf. & Expo, New York, NY USA
Info: Global Warming Int. Center, Columbia University, Fax: +1-630-910-1561.

May 27-29, 1997
The World Sustainable Energy Trade Fair, Amsterdam, Holland
Info: att. Alex Mee, European Media Marketing ltd., 6th floor 22-26 Albert Embankment, London, SE1 7TJ, UK. Ph/fax: +44-171-5827278/-7938007, email: sustain@emml.demon.co.uk.

May 27-29, 1997
The 3rd Expo & Symposium for New & Renewable Energy Equipment, Tripolo, Lybia
Info: International Energy Foundation (IEF), PO Box 83617, Tripoli, Libya. Ph/Fax: +218-21-3331832/-3331831.

June 15-18, 1997
Wind Power'97 Austin, Texas, USA Conference and exhibition
Info: Linda Redmond, American Wind Energy Association, 122 C Street, NW, 4th floor, Washington DC 20001 USA. Ph:/fax: +1-202-383-2500/-2505, email: lindaredmond@mcimail.com.

June 22-28, 1997
Int. Conference on Sustainable Agriculture for Food, Energy & Industry, Braunschweig, Germany
Info: FAL, Institute of Crop Science, Bundesalle 50, 38116, Braunschweig, Germany. Ph/fax: +49-531-596600/-596365.

June 30 - July 4, 1997
14th European PV Solar Energy Conference, Barcelona, Spain
Info: European Commission, Joint Research Center, H. Ossenbrink/EPVSECE 14, 21020 Ispra (VA) Italy. Ph/fax: +39-332-785885/-789268, email: jennifer.rundle@jrc.it.

July 8-11, 1997
Energy Efficiency Services in the 21 Century, Saratoga Springs, NY, USA
Info: ACEEE, American Council for an Energy-Efficient Economy, 1001 Connecticut Avenue NW, Suite 801, Washington DC 20036, USA. Ph: +1-202-429-8873, Fax: +1-202-429-2248, email: ace3-conf@ccmail.pnl.gov .

July 14-18, 1997 *
5th UNESCO International Conference on Adult Education
Info: UNESCO Institute for Education
Ph: +49-49-448041-0, fax: +49-40-4107723.
e-mail:uie@unesco.org.
Please see article on page nr 5.

July 22-24, 1997
ISAAE'97 Johor Bahru, Malaysia
Int. Symposium on Advances in Alternative/Renewable Energy
Info: Universiti Teknologi Malaysia, Locked Bag 791, 80990 Johor Bahru, Malaysia. Ph/fax: +60-7-5504758/-5566159, email: othman@fkj.utm.my.

August 24-29, 1997
ISES 1997, Future Globe in the Sun, Korea
Info: Korean Solar Energy Society, 635-4 Yeoksamdong, Kangnamgu, Seoul 135730, Korea. Fax: +82-2-5689208.

October 13-16, 1997
Asia Pacific Renewable Energy & Energy Efficiency '97, Jakarta, Indonesia
Info: Alternative Development Asia, 5F, 3 Wood Road, Wanchai, Hong Kong. Ph/fax: +852-2574-9133/-1997, email: altdev@hk.super.net.

Advertisement in Sustainable Energy News

For the first time, we have advertisements in Sustainable Energy News (pages 12-13). This prompted us to formulate a policy for advertisements:

- Advertisements not supporting the goal of INFORSE can be denied.
- The prices are:
  600 US$ for 1 page,
  300 US$ for 1/2 page,
  150 US$ for 1/4 page,
  100 US$ for 1/6 page,
  plus cost for extra colour.
- The deadline for advertisments is the same as for other submissions to Sustainable Energy News (see page nr. 2).
- The revenue of the advertisement goes to improve the newsletter.

Help improving the Sustainable Energy Contact List
The European part of the Contact List will be published in the next issue

..... Correction to contact list ..... New contact
..... I would like to subscribe to Sustainable Energy News (30 US$/year incl. bank costs)

Name of organization: .....
.....
.....
Address: .....
.....
.....
Country: ....
Ph: ..... **Fax:** .....
E-mail:.....
Contact person(s): .....
.....
Status of organization: ..... NGO, ... governmental, ... research, ...business, ... international, ...national, ... local.

Short description:.....
.....
.....
.....

Return to: Sustainable Energy News
Gl. Kirkevej 56, 8530 Hjortshøj, Denmark.
Ph: +45-86-227000 Fax: +45-86-227096
E-mail: ove@inforse.dk

INFORSE Coordinators

Africa, Eastern
FWD- Found. for Woodstove Dissemination, P.O.Box 30979, Nairobi, Kenya, Ph.: +254-2-566 032, fax:+254-2-740524/561464,email: stephen_karekezi@elci.gn.apc.org att. Stephen Karekezi, Timothy Ranja

Africa, Western
ENDA-Energie, 54 rue Carnot, B.P. 3370, Dakar, Senegal. Ph.: +221-225983/-222496, Fax: +221-222695/-235157, E-mail: energy@endadakar.gn.apc.org att. Youba Sokona, Masse Lo

Eastern Asia & Pacific
PCATT- Philippine Center for Appropriate Technology & Training, 224 Diego Silang Str. 4200 Batangas City, Philippines. Ph.: +63-43-723-1155 Fax: +63-43-723-0340 E-mail: inforse@phil.gn.apc.org att. Benjamin Gertes

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INSEDA - Integrated Sustainable Energy and Ecological Development Association 3rd floor, St. Soldier Tower, Vikas Puri, New Delhi 110018, India. Ph.: +91-11-5510344 or -5526521 Fax: +91-11-5529646 att. Raymond Myles

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OVE - Danish Organization for Renewable Energy, Gl Kirkevej 56 8530 Hjortshøj, Denmark. Ph.:+45-86227000, fax:+45-86227096 E-mail: ove@inforse.dk att. Gunnar Boye Olesen

Foundation for Alternative Energy, PO Box 35, 850 07 Bratislava, Slovakia. Ph/fax : + 42-7-836-964 E-mail: bedi@seps.ke.sanet.sk att. Emil Bedi

Latin America
IED - Instituto de Ecologia e Desenvolvimento, rua da Assemblera 10, sala 816, Rio de Janeiro, CEP 20119-900, Brasil. Ph/fax: +55-21-531-2948, (Univ.: Ph/fax: +55-21-2709995/-2906626 E-mail: emilio@ppe.ufrj.br att. Emilio & Ana Lucia La Rovere

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