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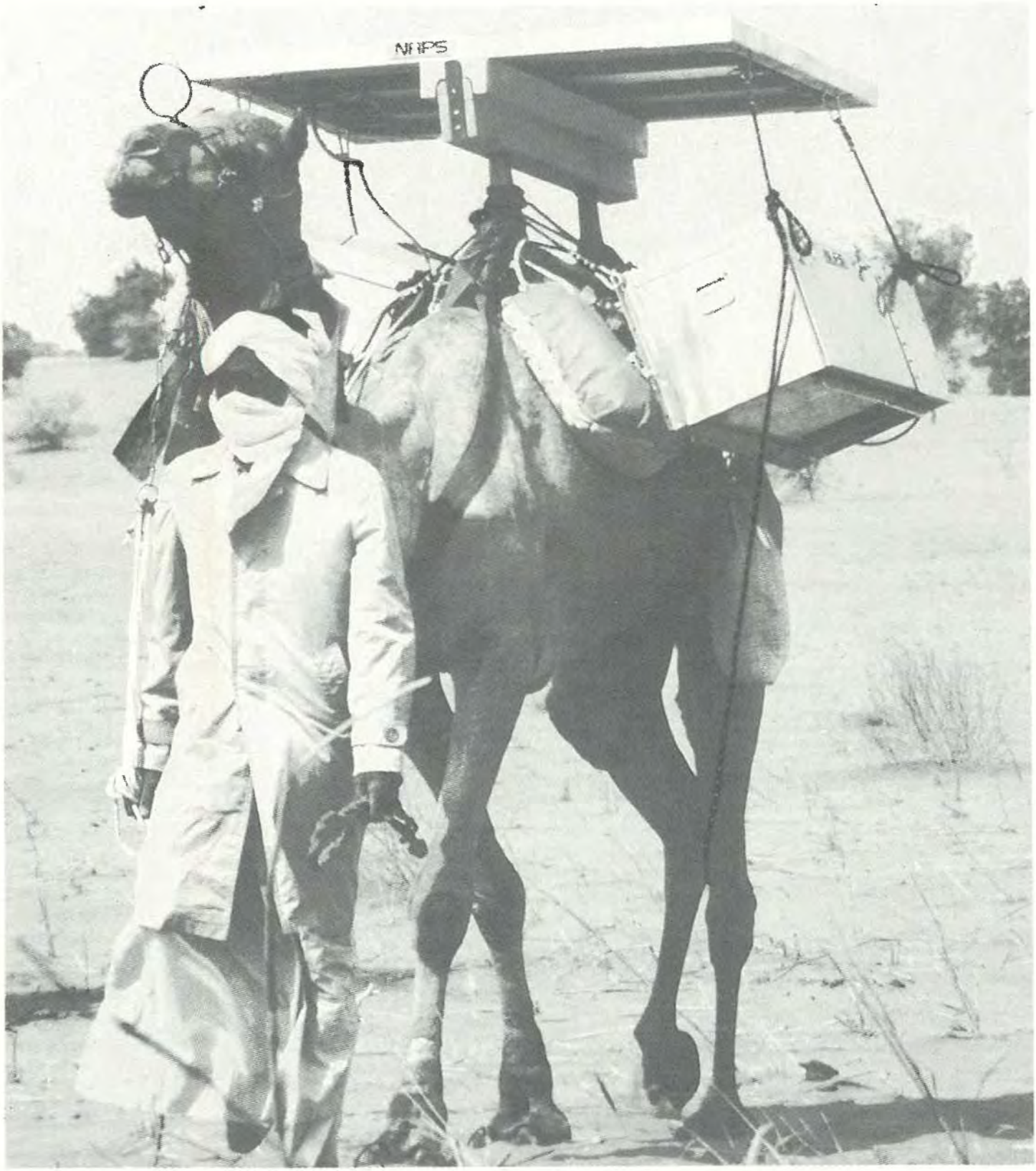

Sustainable Energy News

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INforSE

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

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Front page photo
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Join the INforSE Network !

The International Network for Sustainable Energy is open to membership for NGOs interested in sustainable energy development. INforSE is based on the NGO energy strategy "Sustainable Energy Development - towards a world strategy" Membership is free of charge.

If your organization wishes to become member of INforSE and support the NGO energy strategy, please send a request to INforSE, c/o OVE, Willemoesgade 14, 2100 Copenhagen Ø, Denmark. Then you will receive a copy of the NGO energy strategy and other INforSE papers including the membership application form and enter the mailing list of this newsletter.

Editorial: Energy and Democracy

Peoples Participation in Environmentally Sustainable Development

Industrial production and consumption affect and destroy nature more and more, - ruin the basis for life and culture.

It becomes still more clear that the real force in seeking new ecological sustainable ways of living is coming from *"common man"*'s eagerness and will to establish a basically healthy world society. Many popular movements are concerned with the connection between energy, environment and development. It's evident that you don't find the eagerness among the economic power elite and the multinational companies. Or among the political and bureaucratic establishments. You find it in *"people's participation"*!

But another point is that it isn't easy for common people to get real influence. In the case of the energy sector we must realize, that a complex and centralized structure, combined with big investments and extremely big private interests in this sector, make a democratic influence very difficult.

Many examples and cases worldwide show that private organizations (NGOs = Non Governmental Organizations) are ready to participate in both planning and the concrete building of local energy - systems, based on renewable energy sources.

Unfortunately there are much more examples showing that the established and vested interests overrule the democratic influence: New and enormous central power stations, often dangerous, often damaging and polluting nature, are still build in almost all countries. And, among the other effects, hindering the introduction of renewable energy and energy saving.

Therefore: There is a big need in all countries to secure that energy planning takes place under democratic control. The effort must form an integrated part of a continued democratization process and thus, at all levels, become rooted in democratic structures. Active participation of the concerned communities is essential, and a special effort should be made to involve both men and women in this process.

And not to forget: Democratization shall be the principle when regional and international tasks of cooperation are concerned - e.g. in connection with international agreements and multilateral energy projects and programs. We are far from that situation today. But it is necessary to reach it - if we want to achieve a sustainable energy future.

Uffe Geertsen, Chairman
Forum for Energy and Development

Emerging Regional Structure of INforSE

With more than 50 member-organizations worldwide the need for developing the regional structure of INforSE is growing. For each of the world regions the regional structure will be discussed at a regional meeting, that is planned to take place within half a year from now.

The regional meetings will discuss the future activities of INforSE, plan coming activities for the region, and elect one or two coordinators for the region. At the moment 3 regional meetings are planned: Europe, Latin America and Africa (East).

Regional meetings

While the regional meeting in Europe has taken place before most readers receive this newsletter, the regional meetings of Latin America and Africa are still some months ahead.

The Latin American regional INforSE meeting will take place in Rio de Janeiro, Brazil, one or two days in the week October 18-22. It will correspond with the large Brazilian Energy Congress, with large fairs, conferences and other activities. More information by Emilio Lebre la Rovere, Instituto de Ecologia e Desenvolvimente, c/o Universidade Federal de Rio de Janeiro, Bloco C, Sala 211 C.P. 68565, Ilha de Fundao, 21945 Rio de Janeiro RJ, Brazil.

The African regional INforSE meeting will take place in Nairobi, Kenya in November following the AFREPREN Energy Planning Seminar. More information by Stephen Karekezi and Mumbua Munywoki, Foundation for Woodstove Dissemination, P.O.Box 30979, Nairobi.

Coordinators meeting

A coordinators meeting for regional coordinators and contact persons will be held, in order to enhance the global cooperation. The meeting will take place in Denmark, October 10-15. It will focus on the development of action plans and sustainable energy strategies for the regions. Another issue on the agenda will be project proposals for common elaboration. There will also be time for a meeting with the board of Forum for Energy and Development, that will channel funds to a number of INforSE activities.

Sustainable Development News from Brazil

by Emilio Lebre la Rovere

The United Nations Framework Convention on Climate Change signed by 154 countries during UNCED - 92 in Rio clearly states that developing countries must be compensated for the "agreed full incremental cost" incurred to limit their greenhouse gas emissions. The convention thus opens a wide spectrum of possibilities to tap the huge potential of renewable energy sources available in Brazil.

This does not mean to submit general interest of Brazilian society to meeting preservation targets of the global environment, when it is mainly menaced by pollution originated by industrialized countries.

On the contrary, there is a large scope for a positive synergy between a sustainable energy development strategy for Brazil and the prevention of global climate change.

Taking into account the due precautions to minimize local and regional environmental costs, promoting energy conservation, hydropower, solar energy and biomass (wood and charcoal from afforestation programmes, ethanol fuel and power generation from sugar cane bagasse) will surely contribute to meet national development objectives and simultaneously sharply limit CO_2 emissions.

These are some of the main conclusions of a recent study prepared for the UNEP Collaborating Centre on Energy and Environment by the Rio Center for international Prospective Studies on Environment and Development.

Climate Change Convention is still not approved

Meanwhile more than one year after the Rio Summit, the Brazilian government which was the first one to sign the Climate Change Convention has still not sent it to the Congress for approval. And short-term prospects of Brazilian energy policy now point in exactly the opposite direction of a scenario which would minimize CO_2 emmissions.

Due to the impossibility of funding the investments needed, hydropower development is being delayed. Fiscal exemptions to foster afforestation programmes were cut to help reducing the goverment deficit. The same occured with soft loans directed to increase ethanol production and the Alcohol Programme was frozen, bringing sales of new ethanol-powered cars down to 20% of the car sale (from more than 90% five years ago).

New Anti-Nuclear Network

On the other hand the government has just announced its intention to achieve the construction of Brazilian second nuclear power plant which was stopped due to the lack of funds. Official estimates put at 1.5 billion dollars the amount of additional investments still needed until the plant is ready for starting operation. But the Brazilian section of Greenpeace says that this figure is rather underestimated. Moreover, the first nuclear reactor installed in Brazil has never operated properly and is right now stopped due to radiation leakages. The site chosen for the location of the two reactors is a beautiful touristic spot at the coast between Rio and Sao Paulo. But no appropriate emergency plan in case of nuclear accident is available. Against this policy Brazilian NGOs have created an anti-nuclear network and put forward an alternative proposal of shifting the new nuclear power plant to the use of natural gas as in a similar case in the USA.

Regional INforSE Meeting

These will be some of the main issues to be discussed at the INforSE Latin America meeting, to be held in Rio de Janeiro on October 18-22, as a workshop within the VI Brazilian Energy Congress, the major energy event organized every three years in Brazil by the Federal University of Rio de Janeiro, gathering a few thousand people from all Latin America. Contacts with other networks on renewable energy and with NGOs from other Latin American countries are under way to take advantage of this opportunity to strenghten the organization and to discuss future projects of INforSE activities on the regional level.

Many cars run on alcohol in Brazil today, but with the current policy it might change in the future.

News from USA/Canada

by Gunnar Boye Olesen, OVE

Independent Home Tour

On october 16 more than 100 energy independent homes in the USA will open their doors for visitors. All these homes are working examples on how to live a good life in the USA without dependence on energy from outside of the neighbourhood.

The event "*Tour of Independent Houses*" is organized by Real Goods Trading Company Ltd, an american mail-order company specialized in technologies for energy independent homes and communities. Further information by Karen Hensley, Real Goods, 966 Mazzoni Street, Ukiah, California 95482, USA.

Sustainable Energy Blueprint

Last fall more than 40 NGOs based in Washington DC drafted a "*Sustainable Energy Blueprint*" and a "*Sustainable Energy Budget*".

This group of NGOs is now continuing its work with support for president Clintons proposals of a 30% increase in the federal budget 1994 for renewable energy and efficiency. This group is also active towards House of Representatives, where over 100 members of the House now have signed a letter urging for support of the Clinton Administrations proposal.

The group is also seeking members of Congress with interest in renewable energy and efficiency, as well as starting the work for renewable energy and efficiency on the federal budget 1995.

Sun Day

The Sun Day Campaign in USA, that has worked for a sustainable energy future since 1978, is now considering a coordinated action day for renewable energy and efficiency. This action day is proposed as a "*Sun Day*" on april 24; two days after Earth Day on april 22. The growing interest for renewable energy in the USA, the growing number of commercial technologies in the field and the more positive political climate are all reasons for success with a coordinated campaigning day. Information by Ken Bossong, Sun Day 1993, 215 Pennsylvania Avenue, S.E. Washington D.C. 20003, USA.

Save The Planet Software

A new 1993 version of the educational software packet "*Save the Planet*" is now released. It introduces global warming and other global problems, it gives examples of solutions as renewable energy and energy savings, and it has a long list of NGO-contacts in USA. Further information: The Planet Software, P.O. Box 45, Pitkin, Colorado 81241, USA.

News from the European Region

by Gunnar Olesen and Ann Vikkelsø

TOES in Denmark

At June 18, three days before the official EC-Summit in Copenhagen a number of NGOs called for an alternative: "*The Other European Summit*". At our summit more than 100 NGO- representatives from most of Europe discussed the most pressing issues on environment and development. Regarding energy we discussed the proposed CO_2/energy tax, that is now once again delayed, and the internal energy market proposals. In the final text we ask EC to implement immediately the CO_2/energy tax with the amendments that:

- the revenue of the tax should be recycled to energy efficiency and renewable energies as well as for lowering tax on labour
- there should be no exemptions for energy efficient industry

For the Internal Energy Market its focus should be changed, so the market regulation becomes an integral part of EC's action plan to reduce CO_2-emissions. The current EC action plan will not lead to sufficient CO_2-reductions, even including a CO_2/energy tax.

We ask EC to change its support to nuclear safety in Eastern Europe to primarily invest in energy efficiency, that can lead to phasing out of the dangerous reactors.

Other issues discussed at TOES was traffic (we ask EC to stop a plan for 12,000 km new motorway), trade, waste trade, EC Internal Market, EC Structural funds, and population and immigration questions.

NGO Seminar on Renewable Energy

The Greenway Energy Working Group held a seminar for Central and Eastern European NGOs in Bratislava April 29 to May 1 this year. They see renewable energy as an important answer to the pollution in the region. But social, economic and political barriers for renewable energy exist.

Therefore they recommend their governments to: develop new pricing mechanisms, formulate awareness programmes, earmark loans for renewable energy, facilitate markets for renewable energy, etc.

GEF NGO Small-Grants Window

by Gunnar Olesen, OVE.

A small part of the Global Environmental Fund (GEF) is channelled through a new small grants window managed by UNDP (United Nations Development Program). It supports NGO- activities to combat global environmental problems. The following article is based on the Progress Report No. 2 for this program, written by Jane W. Jacqz and Peter Hazlewood, UNDP.

The program consists of country programs. By now these are operational in 25 countries and they will function in more than 30 countries by the end of the year. Beside this, there is planned an inter-country component of the program; this is not yet operational, however. With this part of the program it will be possible to fund international NGO-activities.

The goals of the supported activities must be within the goals of GEF: securing biodiversity, combating climate change and ozone-depletion. By May 1993 a total of 7 million US$ was made available for the small grants window.

Country-programs*

In each country involved there is employed a National Coordinator and appointed a National Select Committee with the task of selecting the projects to support. For each country 200,000 US$ are initially allocated. The country fund will be replenished when the initially allocation is used and the program evaluation is positive.

Eligible activities to combat global warming are:

- Afforestation/reforestation activities, especially community-based fuel wood plantations
- Improved land-management practices, e.g. combatting bush fires, introducing alternatives to *'slash and burn'* practices
- Household energy efficiency programs, e.g. using fuel wood more efficient, introducing fuel-efficient, low-emission cookstoves, solar cooking
- Development of alternative sources of energy, e.g. solar or wind projects in rural areas
- Biogas demonstration programs
- Community-based marketing and delivery systems of energy efficient products for household use
- Institutional support to deliver renewable energy systems to rural areas
- Small-scale building projects with innovative technology, e.g insulation, that conserves energy
- Community-based activities to combat urban greenhouse gases from factories and vehicles, e.g. promotion of public transport
- Public awareness, education and information activities that increase people's understanding of environmental problems and remedies
- Policy and advocacy activities supporting community efforts and/or government policies to conserve the global environment.

Of the first 36 projects approved, one is supporting dissemination of fuel-efficient stoves and a number are supporting afforestation/reforestation. The funding for each project is between 3,000 and 50,000 US$ with the majority around 25,000 US$.

Further information at UNDP, One United Nations Plaza, Rooms 2050-2052, New York, N.Y. 10017, USA, ph. +1-212-906 6076, fax +1-212-906-5313.

* The country program are now functioning in the following countries: Africa Sub-Sahara: Botswana, Burkina Faso, Cameroon, Ivory Cost, Ghana, Kenya, Mali (Mauritius and Nigeria will follow). Arab Countries: Egypt, Jordan, Tunesia. Asia and the Pacific: Indonesia, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka (India and Thailand will follow). Europe: Turkey. Latin America and Caribbean: Belize, Bolivia, Chile, Costa Rica, Dominican Republic, Mexico (Barbados, Brazil and Ecuador will follow).

European Energy Charter

In spite of intense negotiations, there has not been reached agreement on the Charter Treaty (Basic Agreement) for the European Energy Charter so far. While general agreement is reached for the wording of the environmental paragraphs, there are disagreements concerning the general terms of trade and investment in the energy sector. Main disagreements exist between Russia and a number of other countries.

The negotiations are still closed for NGO's and the environmental paragraphs are better than the first drafts, but not satisfactory.

GBO

Energy on Electronic Mail

The following messages are from the INforSE electronic-mail conference, energy.network. Further information can be obtained from INforSE/OVE.

New Conference on Energy Efficiency. Kleinman wants to create a newsgroup on EcoNet that discusses the use of energy efficient and renewable energy technologies in private and public buildings and facilities. The newsgroup would be dedicated to the practical side of saving energy and using solar power in the commercial sector. He is the author and editor of "*Energy Ideas*," a monthly newsletter that is posted on the EcoNet conference ate.news. The newsgroup will allow people to share the information that only experience can provide. Contact: ei@igc.apc.org.

en.energy has been a continuing source of information on energy efficiency and renewable energy for some years now, and there is a lot of valuable information there. Also, I am editor of Wind Energy Weekly, and I post back issues of that publication in en.energy. *Tom*

energy.effrefs and **energy.forum**. The former includes documents that are profiled and can be downloaded. The objective is to try and locate high-value documents in electronic format that professionals and advocates working in other parts of the world can access electronically. Contact M. Totten, at iiec@igc.apc.org.

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Sustainable Energy News

Europe

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Renewable Energy - Sustainable Lifestyle ?

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Energy Saving Demonstration Project in Krakow

by Magda Zastawnik and Adam Gula

The main source of potential energy savings in Poland is the residential sector. It accounts for 40% of total energy consumption. For comparison, in Western European countries the corresponding fraction is about 30%. At the same time, the efficiency of energy services is more than twice as high as in Poland.

Barriers

In particular, it is estimated that the efficiency of space heating in Poland is only about 30%, whereas in western countries the analogous number is about 80%. There are several barriers to be overcome if the situation is to be improved.

Firstly, the question of tariffs and prices. Most of the residents pay for heat according to floor area of their apartments. Heat is practically never metered individually. Obviousloy, this introduces no motivation to save energy and if people are too hot, they just open the windows (which, in fact, is the only solution, because the radiator valves cannot be operated).

There is also a social factor, which is the lack of habbit to save energy, in general. It is a result of low energy prices in the past 50 years, which were heavily subsidized by the state budget. With the economic reforms, the subsidies are being withdrawn, and energy bills become a significant burden for an average Polish family. However, investing in energy savings is hampered by lack of private resources and by technical obstacles.

In order to embark on such an investment the person or the housing cooperative has to know if the investment is profitable. Here we come to the problem of data which in fact, do not exist. Heat was not metered and its consumption in a building was usually determined by calculations, which do not necessarily reflect reality.

The Krakow Project

This was the reason for an experimental demonstration project realized over the last heating season in Krakow in the South of Poland. The project was sponsored by the United States Agency for International Development (US AID), and piloted on the American side by Mr. Larry Markel - Elektrotek Co. On the Polish side the project was coordinated by the Polish Foundation for Energy Efficiency and the Development Office of Krakow.

Four neighbouring identical buildings were selected, each containing 66 apartments. In the first one only a heat meter was installed to measure the "baseline" heat consumption. In the second building a heat meter and controlled heat exchanger, regulated by ambient temperature, were installed. In the third building thermostatic valves and cost allocators were additionally mounted on each radiator, so that, beside the ambient temperature regulation, people could adjust the temperature individually. Building No. 4 was additionally insulated (attic space and basement sealing), windows and doors were weatherstripped and caulked. All data (heat consumption, indoor, outdoor temperature, etc.) were automatically registered by a Honeywell - Excel System.

After the heating season, data have been analysed, showing savings up to 20% in building No. 4 (compared with the "baseline" building). The savings will certainly be higher when the inhabitants start using the thermostatic valves regularly and properly.

This was only the first step. It was, however, sufficient to encourage other housing cooperatives to follow the example. The Polish Foundation for Energy Efficiency is now initiating two larger scale projects in this area.

Further information by Magda Zastawnik or Adam Gula, The Polish Foundation for Energy Efficiency, Krakow Branch. Ph/fax: +48-12-332613.

One of the first experiments with active solar heating in Estonia. Tallinn 1991.

Solar energy in Estonia

At the moment the development of solar energy in Estonia is very slow. A recent study by Teolan Tomson and Eha Pajumets in Tallinn shows, however, that there are a number of interesting options for solar energy in Estonia. Firstly they point at the many gardens outside larger towns, where people grow vegetables during the summer. At the cottages in these gardens there is a need for small amounts of hot water in the summer. While solar systems with imported collectors will be too expensive for the Estonians today, there is a possibility to construct solar collectors of locally available materials (glass and plastic) for about half the price of imported types (80-100 US$/m^2 compared to 150-200 US$/m^2). Another potential use is commercial greenhouses, that due to oil price increases are no longer able to pay their traditional fuel-oil fired heating. With solar collectors it is possible to extend the period, where the greenhouses do not need additional heating from 3 1/2 months to 5-6 months.

Further information by Teolan Tomsen and Eha Pajumets, Institute of Energy Research, Paldiski mnt. 1., Tallinn, EE0001, Estonia.

GBO

Energy Planning in Eastern Bohemia

by Gunnar Olesen, OVE.

An energy planning study including a thorough evaluation of the renewable energy potential has been made in the two districts Hradec Kralove and Pardubice in Eastern Bohemia, Czech Republic.

Renewable Energy

The renewable energy potentials have been evaluated for the most promising resources. For these districts, with about 400,000 inhabitants and 1600 km^2 land, the estimated potential is 4 PJ equivalent to 12% of the current fuel consumption or 25% of the projected consumption in year 2020 (with a scenario that has medium economic growth and medium introduction of energy efficiency).

The renewable energy potentials are:

Excess straw	1,5	PJ
Biogas from manure	1,0	PJ
Waste wood from forest and industry	0,6	PJ
Biogas from other sources	0,16	PJ
Hydro Power	0,16	PJ
Landfill-gas	0,11	PJ
Active solar for hot water	0,1	PJ

Beside this there is a potential of 1,2 PJ of energy from energy crops, if 15% of agricultural land is used for this and 0,4 PJ for incineration of household waste, if the pollution problems created by incineration are solved sufficiently to use this technology.

These results of the study shows that even in more densely populated areas with no considerable wind, hydro or geothermal resources, renewables can play a significant role. And the role will grow as efficiency measures decreases the consumption. Economical comparisons between renewables and existing technologies have not been included in the study; however, some prices are included. Straw and wood are available in the countryside for about half the price of brown coal. Biogas can be installed for about 7 Kcs (Czech Crowns) or 0,25 US$ per annually produced kWh, and with a Czech-Danish joint-venture this price might be lowered.

There will be a number of barriers to use the full renewable energy potential. For instance the straw resource is evaluated for an average year, and in years with little straw production there must be alternatives available which could be wood.

Planning model

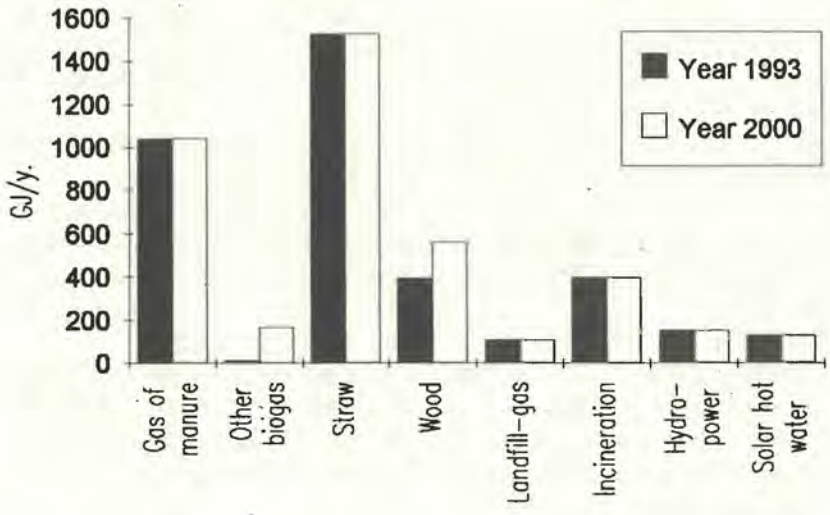
The renewable energy study is used as a basis for a regional energy plan carried out for the two districts. In the energy planning study the two districts have been divided into 300 end-use districts, each consisting of a village or a part of a town. For each of these the current fuel-mix and its potential developments have been evaluated. The total model that also includes evaluation of penetration of new efficient technology and structural development is computerized with the SESAM energy planning model, that has been used several times for regional energy planning in Denmark.

Local produced windturbine near Brno, Czech republic.

The preliminary results show that the current total fossil fuel consumption of 33 PJ can be reduced by 0-60% in the coming 30 years, depending on the energy strategy chosen and the level and kind of economic growth in the districts.

The studies are made by AUC, Aalborg University Center, OVE and Planenergi in Skørping all from Denmark; and Ekowatt, SEVEn Institute and Cityplan in the Czech Republic.

The report "Renewable Energy options in Hradec Kralove and Pardubice Districts" (90 pages incl. appendices) is available from OVE. It costs 90 DKK incl. postage (send a cheque). In September a Czech version will be available from Ekowatt, Bubenska 6, Praha 7, Czech Republic. Also at this time the reports describing the general energy planning will be available from AUC, att. Klaus Illum, Fibigerstræde 2, 9220 Aalborg, Denmark.



Energy potentials in Hradec Kralove and Pardubice Districts. The results of a study made by EkoWatt and OVE in Spring 1993.

Technostructure Composed by State Corps Models the French Energy Scene

by Liliane Battais, CLER/EFRE

After 1945's war, the biggest French energy firms have been nationalized. Since then, nearly all decisions on energy policy have been taken by two State corps (Corps des Mines and Corps des Ponts), which control the management of the energy firms as well as the senior staff of goverment departments entrusted with their supervisions.

This technostructure successively dictated 3 unbending policies:

- recovery coal plan, after the war to encourage the economic situation
- massive oil import in the 60es, to stimulate a low energy cost development in an open market
- massive change to nuclear (and electricity), after the first oil crash in 1973, to face the rocketing of hydrocarbon prices

No Democrazy

Democratic debate never took place about this question. The State Corps seized power in this specific case, considering that they are the only ones who have the technical expertise in hand and that, because of energy system inertia, they ensure State continuity while politicians are subject to electorial dubiousness.

1970's Giscard's right wing was very much linked with the nuclear lobby, including personal ties. In the opposition, a part of the Socialist party stemed from the above mentioned Corps executives, and the other part moved closer towards a self managing and antinuclear sphere of influence. Their program planned a large energy debate and a diversification of the energy policy. But, when they were in power, the 1981 energy debate turned to the benefit of the above mentioned technostructure, in the name of realism and carrying on the former regime.

Alternatives

However, the French Agency for Energy Saving (AFME) was born, and despite its small budget (but thanks to the high price of oil and gas) found means to drive a policy of energy saving with a stabilization of energy consumption in the 80es.

During the second energy debate organized in 1989 many proposals from the electric heating detractors and renewable energy supporters were presented in front of only 25 Deputies (out of 500!) and there were no follow up to these advices.

Today, an insidious objection to nuclear energy raises especially against the long term storage of radioactive waste. Also, some heating engineers become irritated of EDF-GDF's omnipresence. At last, some government executives (from right as well as left wing) wish clearly to strengthen their supervision on this firm. Nevertheless EDF-GDF continue with an undivided domination of the French energy scene.

Only European Commissioners, in the name of competition (rules of competition, prices, equal terms between firms) can worry this monopoly, which is stocked into national borders in future, and which tries to export its excess electricity or to sell its nuclear expertise to Eastern Europe whose new authorities are still impressed by the taste of totalitarian enterprise.

Liliane Batais is the secretary of EFRE - European Federation for Renewable Energy. Ph: +33-1-4805 1759, fax: +33-1-4806 1981.

Support Protest Against Vuotos Dam

Finnish Association for Nature Protection, WWF in Finland and local groups in Finnish Lapland are asking for support for their protests against the new plans to construct a dam in Finnish Lapland to create the Vuotos Reservoir.

The project is planned to supply hydropower and to be a pump-storage, that can even cut consumption peaks for the planned fifth Finnish nuclear reactor. When full the reservoir will cover 230 km^2 land; but will in late winter shrink to only a fraction of this. The artificial oscillation of the water will constantly erode the bed and shores of the reservoir.

The reservoir will flood one of Scandinavia's largest peatland areas which provides a home for many rare and endangered plants and birds. According to the Finnish Association for Nature Protection mercury bound in the bottom sediment will be released in the water by the erosion. This will lead to contamination of the fish in the river. As has happened previously in Lapland, the contaminated fish will be unfit for human consumption. Also increased eutrophication and other ecological problems are foreseen for the Kemijoki river, connected lakes and the Northern Baltic Sea.

Currently the Finnish Water Rights Appeal Court is considering to grant a building permit for the dam. The answer from the court will come in 1994 or 1995; but the power company Kemijoki Oy is already felling the forest in the area. The environmental movements try to force Finland to make an Environmental Impact Assessment of the project before any decision. According to the Espoo Convention this should be done before investments like this.

For further information, forwarding of petitions, please contact:
Pirja Riita Oinaale, Finnish Association for Nature Conservation. Peramiehenkatu 11 A 8, SF - 00150 Helsinki, Finland, ph: +358-0-642 881, fax: +358-0-622 1815.
Lassi Karivalo, WWF - Finland. Uudenmaankatu 40, SF - 00120 Helsingfors 12, Finland, ph: +358-0-644 511, fax: +358-0-602 239.

GBO

The German Minister of Environment and OECD are listening

*by Jens Larsen, Copenhagen Environment and Energy Office**

700 hundred members attended the general meeting of the wind turbine cooperative 'Avedøre Vindkraft'.

At a workshop in Saarbrucken, the German Minister of Environment plus representatives from OECD and 40 European cities learned from Copenhagen Environment and Energy Office's experiences with organizing energy and environment projects in Copenhagen. The workshop was part of a larger OECD project that collects experiences about solving the environmental problems in the cities, with special reference to a reduction of the CO2 emissions.

Especially the Danish experiences on establishing wind turbine cooperatives attracted attention. The wind turbine cooperative "*Avedøre Vindkraft*" with 722 members is a good example on, how we as citizens and consumers have influenced the power supply.

A characteristic of many presentations was, that the planners, energy advisers, a.o. regard the citizens as a "target group" which must be influenced to do this or that, change behaviour, use low energy light bulbs, etc. The marked difference of a people's movement approach is clearly that our results and projects origin in the active involvement and participation of the citizens.

We have also something to learn from the other cities and countries - I will briefly mention a few examples.

Photovoltaic systems are becoming widely distributed in Germany, as a result of the program "*the 1000 solar cell roofs*". It is interesting, if this program can pave the way for solar cells. Personally, I am a bit sceptical, as I fear a setback for the photovoltaic cells, when the results are evaluted. The costs are pretty high and may disappoint people/politicians.

DSM-programs are becoming more and more widespread, especially in the USA, but also in Germany. DSM, Demand-Side-Management, is about that the power utilities shall invest in electricity savings instead of building new power plants. An existing Danish example is that some power utilities distributes compact fluroscent lamps (CFLs) for free. In the USA, billions of dollars are invested in such initiatives, and in the large majority of cases it is cheaper to carry out energy saving measures than to build new power plants. If the electricity consumption continues to grow in Denmark, new power plant constructions will soon arise. To avoid new centralized power plants in Denmark, we must aim at electricity savings now, including DSM-programs. The experiences exist - maybe we should initiate such a DSM-program ourselves ...

* The Danish '*Energy and Environment Offices*' are local associations that promote and give advice to the public on renewable energy, energy savings, water savings, city ecology etc. There exist approximately 20 offices in Denmark that cooperates with citizen groups and other local organizations.

Avedøre windfarm close to Copenhagen Centre. 6 out of 12 turbines are owned by the private wind turbine cooperative 'Avedøre Vindkraft', the rest are owned by the power utility.

Energy 2000 vs Nordjyllands Power Station.

A case of non-democratic energy planning in an apparantly democratic country.

by Henning Madsen, the Danish Energy Movement OOA.

People who know Denmark and its energy policy might consider the country to be one of the most democratic countries with one of the best policies for building a sustainable energy sector.

Back in 1985 the Government and the Parliament listened to the growing public opinion against nuclear power and decided to exclude nuclear power from the offical energy plan. It took 11 years of public debate and protests to get that far, but at the end the politicians did listen to the public.

Already then the Danish NGOs on energy and environment - OOA, OVE and NOAH were claiming that coal fired power plants were not an environmentally sensible way of producing electricity.

"Out of the Coal Age"

The NGOs launched an information campaign called *"Out of the Coal Age"*. We pointed out that ecologically and socially better alternatives exist. Such as energy efficiency, renewable energy and for a transition period natural gas. This resulted in protests against the building of new coal fired plants and a claim that existing plants should be provided with cleaning for sulphur- and nitrogenoxides.

The success of these activites was fairly small. It was difficult to raise a broad public opinion against coal fired power plants, which the authorities claimed was the most effective in the world. And the power companies, who were totally against any other form of power supply than large centralized coal fired units, seemed to have a good grip on the majority of parliamentarians.

The only progress towards an environmentally better power supply was a law on reducing the emissions of sulphur- and nitrogenoxides from the power plants. It was based on an agreement between the government and the power companies allowing the companies to decide where and how the cleaning should take place.

Then in 1987, we got a helping hand from the UN as the report of the Brundtland-commission *"Our common future"* was released. The following discussion in the parliament resulted in a new official energy plan for Denmark - *"Energy 2000"*.

"Energy 2000" was released by the Ministry of Energy in april 1990 and was approved later that year by the government and a big majority of the parliament. Concerning coal fired power plants Energy 2000 stated clearly that no new plants should be build.

Back to the Coal Age

Now, one would think that in a democratic country this would mean that the power companies were not allowed to build coal fired plants anymore.

However the power utilities supplying the western part of Denmark managed to make an agreement with the energy spokesman of the largest party in the parliament - the Social Democrats. According to the agreement, the companies were allowed to build one new coal fired plant and one natural gas fired plant. Since the conservative and liberal parties in government had no intention to go against the power companies there was suddenly, in spring 1992, a majority in the parliament in favour of the power companies' proposal.

The question raised a big debate within the Social Democratic Party, in the parliament and in the public. And despite the protests of the NGOs and concerned university scientists a majotity in the parliament voted against the energy plan they had approved less than a year before. The construction of a large new coal fired power plant has now started near Aalborg.

The Struggle Against Temelin Continues

Hnuti Duha (The Rainbow Movement) and other local groups continue the fight against the completion of Temelin Nuclear Power Plant. As mentioned in last issue of 'Soft Energy' the Czech Government has desided to complete the plant and has made a contract with Westinghouse. But the necessary Western investments are not secured yet.

Over 50 activists and energy experts gathered in Tyn near the construction site in April. We discussed energy economics, problems of nuclear power and possible alternatives, especially in Central and Eastern Europe. On April 24 we participated in a march and minifestival outside Temelin, that was organized by the Mothers against Nuclear Power. On Chernobyl day, April 26, 30-40 activists chained themselves and blockaded the main gate of Temelin from 6 o'clock in the morning until noon, where the police arrested the non-violent blockaders.

At the same time as the protests/demonstrations against Temelin take place, the local groups try to develop alternatives. A small local firm makes biogas plants in cooperation with local farmers, and the first two farm biogas plants will soon start to operate. These local activities do not get any support from the national authorities.

In July the fight against Temelin continues with a camp near the construction site.

Contact: Hnuti Duha, Jakubske Namesti 7, 602 00 Brno, Czech Republic. Ph: + 42-5-42210438 or + 42-38-36823 (camp site).

AV

Recommendations from NGOs to Governments

The Greenway Energy Working Group held a seminar on renewable energy for Central and Eastern European NGOs in Bratislava April 29 to May 1 this year. They see renewable energy as an important answer to the pollution in the region. But social, economic and political barriers for renewable energy exist. Therefore they have forwarded a set of recommendations to the governments of Central and Eastern Europe.

Social issues:

1.

The economic evaluation of different energy options does not include all social and environmental costs and benefits. Because of this, existing energy markets commonly reflect a bias against renwable energy resources and energy efficiency.

The governments of CEE countries should make efforts to develop a rational pricing mechanism whereby the full social and environmental costs of each energy source are accounted for in decision-making.

2.

Our existing global energy path is inherently unstable. Present patterns of energy production and consumption are neither environmentally nor humanly sustainable. Continued dependence on such patterns will inevitable lead to increased national and international social conflicts, tensions, and instability.

The governments of CEE countries should cooperate to increase the use of renewable energy technologies. An action plan designed by each country should take into account such issues as impact on the quality of life and energy source distribution.

3.

The true merits and value of renewable energy technologies are often not appreciated by the public and policy makers because of outdated images of renewable energy. Information regarding the total economic and social benefits of these technologies should be disseminated. A key democratic principle is the faith in the political process to make enlightened choices. The faith can only be born out if the public receives accurate informations regarding the environmental and social impact of their energy choices.

The governments of CEE countries should formulate educational and public awareness programmes to increase the public understanding of the renewable energy.

Economic issues:

1.

A major obstacle to increased diffusion of renewable energy technologies is the lack of adequate financing.

The governments of CEE countries should guarantee that a significantly increased percentage of energy loans be earmarked for renewable energy projects.

The national governments should introduce an "environmental impact fee" based upon the level of energy related pollutants emitted by each country. The funds collected from this annual assessment would be used, specifically, to fund and support renewable energy and energy efficiency development and utilization.

2.

Renewables are often at a significant disadvantage, from a project financing perspective. This is because numerous smaller projects are often more technically viable than fewer, larger centralized projects but they are currently more difficult to administer.

National governments of CEE countries should create mechanisms within their financial programmes by which small scale renewable energy and energy efficiency projects can be considered for financial assistance as easily as single, large scale projects.

3.

The perception that there is no market for renewable energy technologies inhibits private and public investment, thereby limiting the possibility of viable markets. Furthermore, acceptable ways to assign an economic value to renewable energy technologies do not exist.

Nations of CEE countries should facilitate markets for renewable energy technologies by removing barriers and by developing acceptable ways to assign economic value to those technologies.

Political issue:

National energy plans must properly include renewable energy technologies in order to provide governments and industries with credible information on contributions that can be made by those technologies. These energy plans should properly integrate renewable energy technologies into their existing mix at a rate that would insure environmental sustainability.

Non Fossil Fuel Obligation

"It now looks as if the the renewables part of the Non Fossil Fuel Obligation (NFFO) in England and Wales will be extended beyond 1998, and that similar measures will finally be introduced in Scotland and Northern Ireland. New European Community (EC) Competition Commissioner Karel van Miert has formally told the UK government that the Commission would not object to the NFFO being extended for renewables".

(Source: Safe Energy No. 94, April/May 1993. SCRAM, 11 Forth Street, Edinburgh EH1 3LE, UK)

English Government to be Overwhelmed by Renewable Energy Proposals

Renewable energy developers are proposing to install more than 1,100 MW of wind power over the next two years in England, a Friends of the Earth survey revealed in June'93. This is equivalent to 490 MW of "declared net capacity" or continuous available capacity. However indications are that the Government will be seeking to support just 60-70 MW of "declared net capacity" of new wind power projects in a new "Non-Fossil Fuel Obligation" order, or less than 15 % of the potential uncovered by the Friends of the Earth Survey.

More information by: FOE-UK, Fiona Weightman, ph: +44-71-566 1672.

GBO

Fete du Soleil

In Thouars 300 km SW of Paris in France "*Fete du Soleil*" was held at June 4-6. During this event all kinds of renewable energy applications were shown at an exhibition: solar systems for hot water, passive solar design, solar cookers, wood-stoves, cars and tractors running on bio-fuels like methanol and rape-seed oil, as well as many other things. Another activity was discussions about the possibilities for renewable energy in different European countries and about the introduction of bio-fuels. The event was organized in cooperation between the local organization Ecofete, CLER and the French agency for environment and renewable energy ADEME.

GBO

Norwegian Hydro Power plants in economical trouble

After the liberalization of the Norwegian energy market, a number of norwegian hydro power stations have become uneconomical, as the prices on the Norwegian electricity market have fallen dramatically.

In the new system all major consumers and distributors of electricity can buy electricity where they want. This has given severe problems for the latest built power stations that has large loans to service. One of the stations that face problems is the environmentally problematic Alta Plant.

The Norwegian liberalization from 1991 has led to low electricity prices, no price incentives to save electricity and a stop for further development of hydro power. It has also given a less optimal electricity allocation. Some hydro power stations let water pass through the turbines to keep the price up, while Danish coal-fired power plants occasionally export electricity to the Norwegian Market on power lines build to supply clean hydro power to Denmark.

(Source: Ingeniøren, DK)

GBO

Action Plan for Central and Eastern Europe

European Ministers of Environment had a meeting in Luzerne, Switzerland in April about a strategy for and Environmental Action Program for CEE. "Delegations urged the introduction of taxation that leads to effective limitations in CO^2 emissions and an improvement in the efficient use of energy". But in the real world EC has still not agreed on an energy/CO^2 tax, and NGOs called for details of the tax to be agreed upon. Furthermore other measures such as efficiency standards are needed.

The part of the declaration on nuclear energy was very week, it promotes "phasing out as soon as possible unsafe nuclear installations, in particular unsafe nuclear reactors". Austria, Iceland, Ireland, Luxembourg, Norway and Sweden reserved their signature on this, because they wanted to include "the use of nuclear energy in general should be phased out in the long term."

(Source: The Independent Sector's Network, No. 26, May 1993. The Centre for Our Common Future)

AV

Baffles produce electricity from sunlight

The Dutch institute Novem is planning to invest 8.5 million DKK (1.3 million US$) in building a noise baffle with 1200 photovoltaic panels along the highway between Utrecht and Hilversum. The installed effect will be 55 kW and the plant is espected to be installed in April 1994. Novem has calculated that 20-30 of the Dutch electricity consumption can be covered by photovoltaics placed as baffles along Dutch highways.

(Source: Ingeniøren)

AV

European Researchers Demand Action on EC Carbon Tax

The first meeting of the European Council for an Energy Efficient Economy in Denmark, June 1-5, agreed that a petition be sent to the President of the European Council of Ministers, emphasizing that "the problems of global climate change, acid rain, and ozone depletion are not solved by simply signing protocols but by taking practical measures with a strong impact on production and consumption patterns. Market forces must be made to operate in a new framework of regulation which could allow the development of energy conservation, renewable energies, and pollution reduction. Regulation has to be agreed at the European level. Carbon/energy taxes applied in a fiscally neutral way are an important first step in the right direction."

Further information by: Jan Moen, ECEEE Chairman. Ph: +47-22-959142, fax: +47-22-959099

GBO

Feasible to Close High Risk Nuclear Power Plants in Central and Eastern Europe

by Ann Vikkelsø, OVE

This is the conclusion of a confidential World Bank report that was leaked to Greenpeace recently. The World Bank is examinating the possibilities for replacing unsafe reactors (RMBK and VVER 440/230 types) in Armenia, Bulgaria, Lithuania, Russia, Ukraine, and Slovakia. Hopefully the Western Governments read it before they allocate more money to nuclear energy in Central and Eastern Europe.

The report concludes that "It would be technically and economically feasible to meet electricity demand in the six countries while closing these higher risk plants by the mid-1990s (Low Nuclear Scenario). The investment cost, including nuclear safety upgrades under this scenario would be about $18 billion during 1993-2000 ($2.3 billion per annum) provided moderately-paced economic and energy reforms are pursued to manage electricity demand and improve utilization efficiency, and the primary alternative to nuclear power is gas-fired thermal plant."

The World Bank examins three nuclear scenarios, 'Low', 'Medium', and 'High'. The 'Low Nuclear Scenario' has the least investment cost of the three. The investment cost for the 'High Nuclear Scenario' would be $24 billion ($3 billion per annum). The World Bank report assumes that the fossil fuel costs (mainly natural gas) would be $3 billion higher per annum for the 'Low Nuclear Scenario' compared to the 'High'. There are no estimation of the nuclear fuel cost in the report, which will be considerably lower in the 'Low Nuclear Scenario'.

Sosnovy Bor Nuclear Power Plant (RMBK reactors) near St. Petersburg had a smaller accident on March 24, 1992. The map shows the radiation level in the area.

Large Efficiency Potentials

The World Bank report is quite conservative. It is supply side oriented and a 'High Efficiency Scenario' is missing. There is no study of the investment cost in a more agressive strategy for energy savings and efficiency, though many studies show that the potentials are substantial.

Aiming at energy efficiency and utilization of local renewable sources would cut down drastically the costs for fossil fuel (natural gas), and lower the dependence on imported fuels for the countries without domestic fossil resources.

Sources:

1. *Nuclear Power and Safety in Central and Eastern Europe and the Former Soviet Union*. The world Bank, International Energy Agency, March 1993.

2. *Shutdown! Realising the low cost option to phase out Nuclear Power in Eastern Europe*. Stewart Boyle and Anthony Froggatt, Greenpeace International, c/o Greenpeace UK, Canonbury Villas, London N1 2PN. June 1993. This paper analyses and comments on The World Bank Report.

	Total Electricity Generating Capacity (MW)	Nuclear Generating Capacity (MW)	Generating Capacity of RMBKs and VVER 440/230s (MW)	Nuclear Gnerating Capacity as % of Total Generating Capacity	RMBKs and VVER 440/230s as % of Total Generating Capacity
Armenia	3,514	815	**815**	23	**23**
Bulgaria	12,201	3,760	**1,760**	31	**14**
Lithuania	5,178	2,500	**2,500**	48	**48**
Russia	217,244	20,244	**12,760**	9	**6**
Slovakia	6,300	1,632	**816**	26	**13**
Ukraine	53,569	12,880	**2,000**	24	**4**

That much electricity has to be saved or replaced in the region to shut down the high risk nuclear power plants. Share of nuclear power in total electricity generating capacity, 1991. [1].

Towards a Fossil Free Energy Future

by Gunnar Boye Olesen, OVE

The Greenpeace campaign "Towards a Fossil Fuel Energy Future" has now launched a comprehensive study describing a "Fossil Free Energy Scenario". In this scenario fossil and nuclear energy is phased out before the year 2100.

The basis for the study is a population growth from 5 billion people in 1985 to 11 billion in 2100, and an economic growth throughout the period ranging from 0.6-1,5% p.a. in USA and Western Europe to over 3% p.a. in Africa and parts of East Asia. This growth will change the difference between the poorest and richest country from current 1:14 to 1:2; but will also make the average USA citizen twice as rich as today.

RE and Efficiency

The solutions are introduction of measures to raise efficiency, especially in the period until 2030, and introduction of renewable energy. Solar and wind energy is foreseen to deliver 780 EJ in 2100 or 2.3 times the current total energy supply. this should be supplemented with 177 EJ from biomass. The land use for this will be 3-7 million km^2 for biomass crops and 0.5-1 million km^2 for solar and wind installations, equivalent to respectively 2-5% and 0.4-0.8% of total land area. Development of large hydro- power and geothermal energy is not considered in the study.

One result of the study is that the phase out of nuclear and fossil fuels is possible without a major impact of the overall economy. In particular it demonstrates that the costs of delivered secondary energy is liable to be significantly cheaper under the Fossil Free Energy Scenario than with a "business as usual strategy". This conclusion is, naturally, dependent on a major change of research and development from fossil and nuclear energy to energy efficiency and renewables, and an introduction of fiscal and non-fiscal policies to facilitate the change.

Winners and Loosers

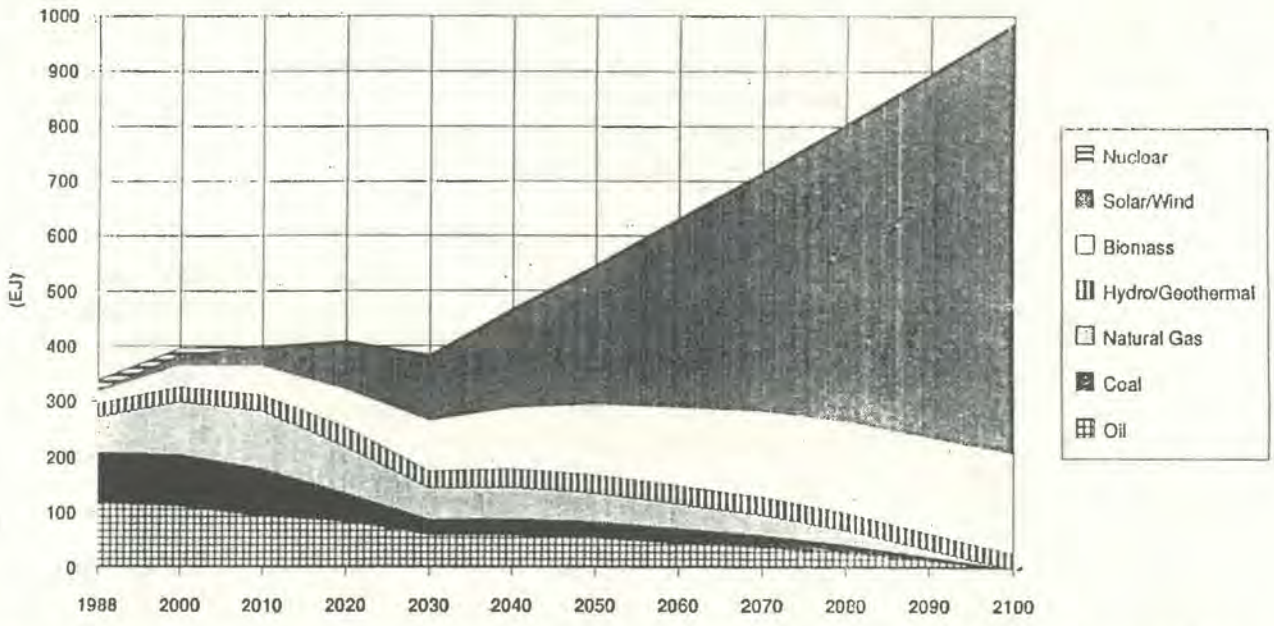
While the overall economic impact of this development is small there will be loosers and winners in business. The major winners will be companies in the energy sector that make a rapid shift from fossil nd nuclear to efficiency and renewables, while the loosers will be those companies, currently working with fossil and nuclear energy, that do not change.

The Fossil Free Energy Scenario does not fully reflect Greenpeace policy and compared to other studies (especially Energy 2030) it has a long phasing out period for fossil fuels. This is partly due to the estimated economic growth.

Sources:

1. *Towards a Fossil Free Energy Future, The Next Energy Transition.* A technical analysis for Greenpeace International made by Stockholm Environment Institute - Boston Center. 240 p., April 1993. Greenpeace International, Keizergracht 176, 1016 DW Amsterdam, the Netherlands.

2. *Fossil Fuels in a Changing Climate - how to protect the world's climate by ending the use of coal, oil and gas.* (A more popular presentation of the study). Greenpeace International, Keizergracht 176, 1016 DW Amsterdam.



Primary world energy supply mix according to "Fossil Free Energy Scenario" in Exajoule (millions of Terajoule). Solar, wind, hydro, and nuclear energy converted from electricity to primary energy using then-current average fossil/biomass plant efficiencies.

Wind Storage Technology Heads West

by Andy North and Rasmus Gade, Folkecenter for Renewable Energy

Hydrogen production technology utilising surplus energy from wind turbines has arrived at the Folkecenter in a new cooperation with the Ukrainian Academy of Science. The hydrogen plant is just one component of the total energy system being developed at the Folkecenter for Renewable Energy (FC). A 20 kW electrolyser plant with a storage capacity of 600 Nm3 is used to split distilled water into its basic components; hydrogen and oxygen. During combustion the hydrogen recombines with oxygen from the air and the exhaust is pure water. The stored hydrogen will be used to provide both heat and electricity via a cogeneration unit during periods of low wind, with the hydrogen also being used as a fuel for cooking.

Lars Yde, project leader and engineer at the Folkecenter, is very pleased with the hydrogen technology: "This installation is the first of its kind in Denmark, where hydrogen combined with wind power is a very interesting option, not only for heat and electricity but also as a fuel for CO2 neutral transport."

The technological transfer of equipment and know-how comes from the Kiev Institute for Electrodynamics. Three highly qualified engineers; Stepan A. Kudrja, Vassily P. Dvoinykh and Nikolai N. Dubrovin (all heads of respective departments) have come to Denmark to install and test the hydrogen plant at the Folkecenter for Renewable Energy (FC).

They arrived after a three days bus journey together with about thirty Ukrainian children, some of whom are suffering from radiation related medical problems. They will stay with families in the local community and will surely return with memories of a land filled with windturbines!

The cooperation between Folkecenter and the Ukrainian Academy of Science began in 1990 when Preben Maegaard (director of FC) visited the Ukraine to discuss alternatives to atomic power after the Chernobyl catastrophe. The technology transfer which resulted, has benefited both sides, with Danish expertise on renewable energy being widely welcomed in the Ukraine.

Ukrainian Engineers; Vassily and Nikolai discussing the electrolyser installation.

Hydrogen power is nothing new in the Ukraine. Much development work over the last century has lead to hydrogen used for cooling processes in power stations and other systems developed mainly for the military. There is also a history of wind energy with about 80,000 windmills existing before the Second World War. The supply of energy is now predominantly nuclear, something many people find unacceptable after witnessing the horrific effects of radiation on their natural surroundings and people of all ages.

The future looks brighter for the Ukraine with over ninety projects being implemented for the Cabinet of Ministers in connection with photovoltaics, wind power, passive energy, biomass and combined systems. These are set to be used in conjunction with the possibilities for hydrogen production and storage, which has proved a clean and efficient means of energy storage and clearly has a future in renewable energy.

500 MW Wind Farm in Ukraine

"The American firm, Kenetech/Windpower of San Francisco entered into a joint venture to manufacture, install and operate a 500-MW wind farm in the Crimean peninsula in the Ukraine. The first of four phases calls for the installation of 25 MW this summer with a further 75 MW in 1994, 150 MW in 1995 and 250 MW in 1996. Once complete, it will provide 11 per cent of Crimean electricity requirements."

(Source: Energy ... in Demand, June 1993)

Publications

The Earth Summit's Agenda for Change
A plain language version of Agenda 21 and the other Rio Agreements. Also available in French, German, Italian Russian and Spanish.
Michael Keating, 70 p., 10 US$. The Centre for Our Common Future, 52 rue des Paquis, 1201 Geneva, Switzerland.

Cutting Carbon Emissions: Burden or Benefit? - The Economics of Energy-Tax and Non-Price Policies.
Energy Policy in the Greenhouse, Vol.II, Part one.
12 Studies on the costs of reducing carbon emissions in various OECD countries are compared, including both top-down and bottom-up analysis. The studies show that "significant cuts in carbon emissions are feasible while saving nations and consumers money." The reduction is most effectively achieved by a least-cost policy approach with programs to correct market barriers to the efficient use of energy, complemented by modest energy taxes and targeted recycling of tax revenues into investments.
Florentin Krause, IPSEP, 1993. International Project for Sustainable Energy Paths, 7627 Leviston Ave, El Cerrito, California, 94530, USA.

The Energy Industry and Global Warming - New Roles for International Aid.
Dennis Anderson analyses worldwide energy output and demand, pointing out the limitations of nuclear power, but is more optimistic about the future potential for cost-effective expansion of production from renewable energy sources. He also examines possible measures for increasing energy efficiency, and the uses and limitations of carbnon taxes and afforestation programmes.
72 p., 6.95£, 1991. ISBN 0 85003 156 7. Overseas Development Institute (ODI), Regent's College, Inner Circle, Regent's Park, London NW1 4NS, UK.

Renewable Energy - Sources for Fuels and Electricity
A state-of-the-art assessment of the technical and economic prospects for making fuels and electricity from renewable sources of energy. 50 renewable energy experts from all parts of the world have contributed to the book.
Edited by Thomas B. Johansson et.al., 1160 p., 30£ (paperback). January 1993. Earthscan Publications Ltd., 120 Pentonville Road, London N1 9JN, UK.

European Directory of Energy Efficient Buildings 1993 - Components - Services - Materials
A tool for architects and engineers designing energy efficient buildings. It includes articles on integrated design, solar architecture and energy conservation, which give a good overview of the different technologies and projects in Western Europe (many of the examples are demonstration projects supported by EC). There is an overview of energy efficient building in Europe (only one brief article on Central and Eastern Europe), and a list of companies and organizations involved in the field.
Ed. Owen Lewis and John Goulding, 322 p., £ 49.95. ISBN 1- 873936-14-1. James & James Science Publishers, 5 Castle Road, London NW1 8PR, UK.

Energy in Central and Eastern Europe; Nuclear Power and Energy Efficiency: Two Options
The results of the Celakovice Conference in 1991 are now available in English, edited by Zsuzsa Foltanyi. The book covers 25 articles by as many writers from anti-nuclear and soft energy organizations. The articles are grouped in 3 chapters: Energy in East-Central Europe, Nuclear Energy and Energy Efficiency; the last chapter also covers renewable energy.
Panos Institute Budapest, Friends of the Earth European Coordination and Greenway. 228 pages. Also available in Bulgarian, Czech, Hungarian and Russian. Greenway Energy Group, Frankel Leo ut 102-104, 1023 Budapest, Hungary.

Practical Solar Handbook
Covers all aspects of installation of solar water heating systems.
5.95£. Centre for Alternative Technology, Machynlleth, Powys SY20 9 AZ, UK.

Periodicals

Development Alternatives
A monthly Asian regional newsletter on sustainable development.
Society for Development Alternatives, B-32 TARA Crescent, Qutab Institutional Area, New Delhi - 110 016, India.

Soft technology
Quartely Australian magazine on renewable energy, energy saving, alternative forms of transport, permaculture, etc.
Annual subscription 18 AU$. Soft Technology, 247 Flinders Lane, Melbourne VIC 3000, Australia.

Transitions
Securing Hawaii's Future Through Energy Diversity. Newsletter published by State of Hawaii.
Free. Dept. of Business, Economic Development and Tourism, Hawaii's Energy Extension Service, 99 Aupuni St., #214, Hilo, HI 96720 USA.

Solar House in Slagelse, Denmark.

Events

August 1-21, 1993
Ecotopia, France
5th European Ecological youth summer camp. Info: Dragonbusz, Malcychard d'en bas, 09350 Castex, France. Ph: +33-61-698553, e-mail: ecotopia@gn.apc.org

August, 1993
Sustainable Energy Solutions vs Brown Coal in former DDR, Germany
Seminar in Cottbus, Sorbia organized by Netzwerk Energie Dezentrale, a.o. Info: Gunnar B. Olesen, OVE. Ph: +45-31429091. Fax: +45-31429095.

August 23-27, 1993
Harmony with Nature, Budapest, Hungary
ISES Solar World Congress 1993. Covers solar energy and other RE. Info: ISES SWC, c/o Malev Air Tours. Ph: +36-1-1187836. Fax: +36-1-1187359.

August 25-29, 1993
Nordic Ecology, Environment and Energy Exhibition, Copenhagen, Denmark
In connection with the International Permaculture Conference. Info: Henrik Augsburg, Copenhagen Environment and Energy Office, ph: +45-31381007, fax: +45-31429095.

September 1993
Protection of land and soils, Virtsu, Estonia
Conference on possible problems on land, soils, rural survival and development, mainly concerning protection, usage, policy, energy, resources and democrazy aspects. Info: Peeter Vissak, ECOFILLER, fax: +372-47-78113.

September 7-10, 1993
Newfoundland Peat Opportunities Conference, Canada
Info: c/o Economic Recovery Commission, ph: +1-709-7380199, fax: +1-709-7382469.

September 14-15, 1993
Competing for Warmth, Manchester
Neighbourhood Energy Action's Annual Conference. Info: Trish Bell, NEA, ph: +44-91-2615677, fax: +44-91-2616496.

September 20-22, 1993
Partnerships for Change, Manchester UK
Follow up to the Earth Summit in Rio 1992. Info: Helen Jones, ph: +44-71-2768168, fax: +44-71-2768861.

September 24-26, 1993
Self-sufficiency from wind and solar energy, Glucksburg, Germany
Course on off-grid systems (in German). Info: Artefact, ph: +49-4631-921, fax: +49-4631-3301.

October 7-10, 1993
Fair of Practical Utopias, Citta' di Castello, Italy
Info: the secretariat, ph/fax: +39-75-8554321

October 12-15, 1993
Energie'93, exhibition, Paris, France

October 18-22, 1993
INforSE Regional Meeting for Latin America, Rio de Janeiro
Info: Emilio Lebre la Rovere, INforSE Latin America. Ph: +55-21-2709995, fax: +55-21-2906626.

October 18-22, 1993
Brazilian Energy Congress
with fairs, conferences and other activities. Info: Emilio Lebre la Rovere, Instituto de Ecologia e Desenvolvimente. Ph: +55-21-2709995, fax: +55-21-2906626.

October 25-30, 1993
City 93 + EHP 93, Antwerp, Belgium
City 93: Urban environment, social issues and health in cities, forum. EHP 93: Environment and public health in modern society, conference. Exhibition. Info: Ph: +32-3-2309232, fax: +32-3-2301644.

November 8-11, 1994
Energy Policy for the Sustainable Development of the Amazon Region, Brasilia, Brazil
Seminar with lectures and discussions in smaller groups. Info: Prof. Marco Alfredo Di Lascio, NUPLE/CEAM/UnB, Caixa Postal 04655, 70919-970, brasilia, DF, Brazil. Fax: +55-61-2734539.

November, 1993
INforSE Regional Meeting for Africa, Nairobi, Kenya
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November, 1993
AFREPREN African Energy Planning Seminar, Nairobi, Kenya
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November, 1993
Renewable Energy Conference, Maputo, Mocambique
Info: Proworld, Maputo, Mocambique

November 23-27, 1993
Altenegy 93, Saint Petersburg, Russia
International Exhibition and seminars. Info: Lenexpo, ph: +7-812-3563560, fax: +7-812-3563555.

January 20, 1994
20th Anniversary Conference - UK-ISES, London
Technical conference on renewable energy. Info: Jenniy Gregory, ph: +44-736-730073, fax: +44-736-730820.

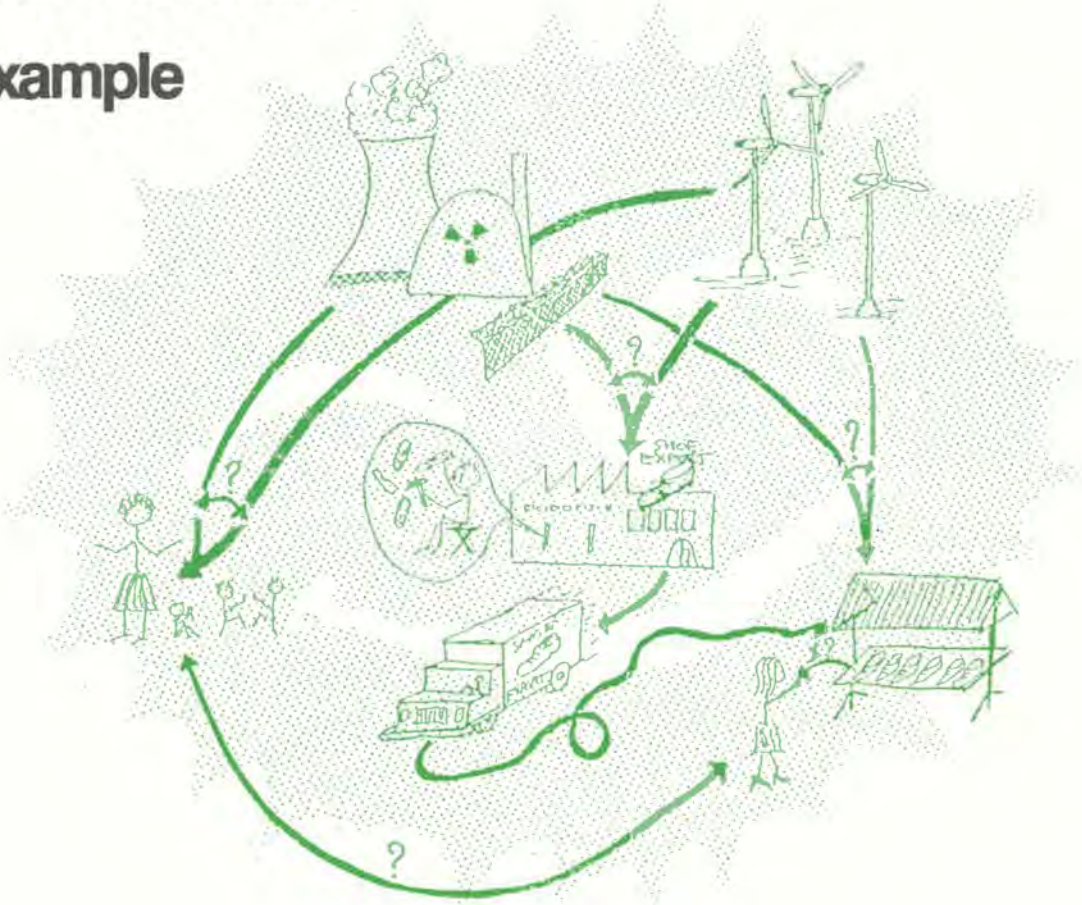
April 11-15, 1994
12th European Photovoltaic Solar Energy Conference and Exhibition, Amsterdam, the Netherlands
Info: WIP, ph: +49-89-7201232, fax: +49-89-7201291.

June 2-5, 1994
Towards the world governing of the environment, Venice, Italy
Info: ICEF director Judge Amedeo Postiglione, ph: +39-6-6868597, fax: +39-6-683000783.

June 21-25, 1994
Energy Visions - Exhibition, Basel, Switzerland

September 11-16, 1994
World Renewable Energy Congress, Reading, UK
Climate Change - Energy and Environment. Info: Prof. A.A.M. Sayigh, ph: +44-734-318588, fax: +44-734-313835.

The Windmill Example



John (or Juan or Hans) lives in a third world country. He works in the local shoe factory. The energy for the shoe factory comes from a nuclear power plant. Some of the shoes from the factory are sent to the capital city of John's country and some of the shoes are exported to the cities of Europe and North America where they are sold cheaply to Helen for whom they are the tenth pair of new shoes in a year. John can't afford to buy a pair of the shoes he makes because they cost the equivalent of one month of his wages. John has a wife and three children and his wages are not enough to provide for all their needs. Because of his low wages John sometimes fights with his wife and his children are often hungry. But John feels luckier than many of his friends who are not able to find paid work.

Then one day the nuclear plants in John's country are exchanged for renewable energy technologies. The energy for the shoe factory is provided by a windfarm. The windfarm uses wind turbine generators developed by a transnational company. The company carries out the planning and the installation of the windfarm with the same lack of local participation and the same asumption of growth in overall energy supply as was the case for the construction of the nuclear power plant before. Now the problems and dangers from the nuclear plant have been removed. But John is still working in the shoe factory on a too-low wage, his wife is still unhappy, his children are still hungry and many of his friends are still unemployed. Meanwhile, in the city, Helen buys her eleventh pair of shoes of the year.

The environmental impact of the energy technology has been reduced but the social conditions have remained the same; there has been no increase in local participation in the development process and no increase in living standards. What needs to be done to improve the quality of life not only for John, his wife and their children but also for Helen.

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