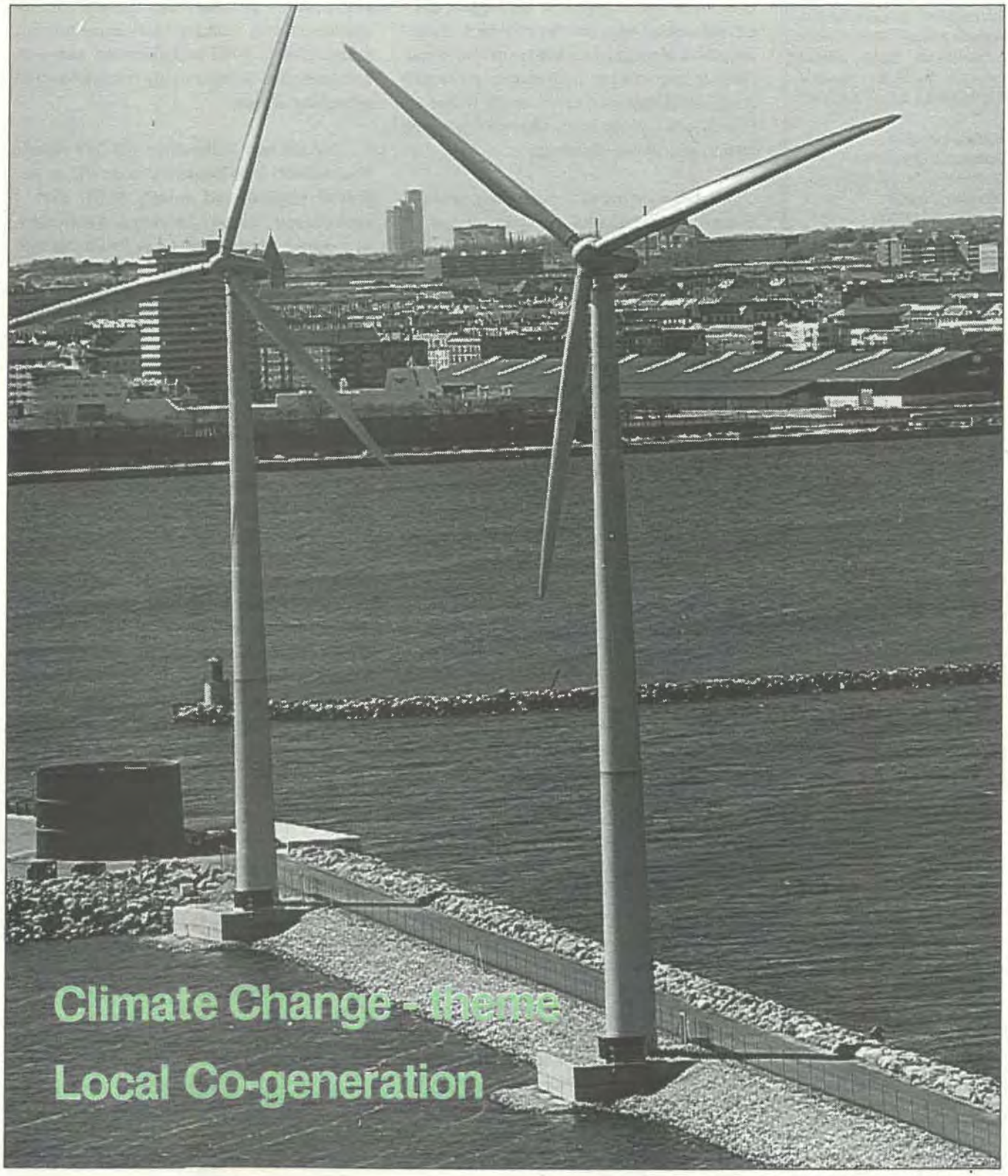
SUSTAINABLE ENERGY NEWS

Newsletter for INFORSE, International Network for Sustainable Energy. No. 19, November 1997



Climate Change - theme

Local Co-generation

Sustainable Energy News
ISSN 0908 - 4134
Published by:
INFORSE
International Network for Sustainable Energy

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

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Deadline for next issue: 15.01.98
Next issue: February 1998

The newsletter is quarterly. Feel free to use the information in the news-letter, 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.

Photo on front page: Windturbines can be an important part of a climate strategy. Photo from Copenhagen by Finn Frandsen, Polfoto, DK.

Waiting for Results before the Climate Changes

Climate change is probably the biggest environmental challenge that we now face. Representatives of national governments spend hundreds of hours sitting in jet planes and negotiating in different parts of the world within the Framework Convention on Climate Change on how to stop global warming.

Global warming is a particularly ominous example of the insatiable human appetite for natural resources, in this case fossil fuels. It is obvious that sustainable energy is the answer to climate change and that NGOs have to say so.

Several NGOs have the opportunity to follow the UN negotiations. The (global) Climate Action Network, Greenpeace, the World Wildlife Fund (WWF), and others believe that the present commitments calling for stabilisation of emissions are inadequate. They support the so-called Toronto target, which calls for reduction of CO_2 emissions of industrialised countries by 20%. This target is included in a protocol proposed by the Alliance of 36 Small Island States (AOSIS), which is most threatened by the climate change. One third of OECD countries have this or a comparable target as their national goals. The problem is that, in general, OECD countries will probably meet neither the Toronto target nor the stabilisation target.

A special situation has arisen in the Central and Eastern European (CEE) countries. This is the only region in which GHG emissions have decreased considerably since 1990. These economies, recovering without struggling for energy efficiency or for development of renewables, now are seeing increased energy consumption, bad news for climate in the future.

The situation in other developed countries is not much better. NGOs have frequently criticised the position of the EU, which is that it does not play a leadership role in negotiations on AOSIS protocol. It is still struggling with internal problems, but has finally proposed 15% reductions by 2010. The US position presents another problem. The Clinton administration recently promised movement towards stabilisation of GHG emissions but with a requirement that the developing countries will do something similar.

Another new topic arose with the climate negotiations: Joint Implementation (JI), or Activities Implemented Jointly (AIJ), were a richer country can pay for emission reductions in a poorer country and make less reductions at home. Most NGOs considers JI as another ploy of industrialised countries to avoid having to do these reductions at home.

Not only JI, but many other problems negotiated on UN ground are attracting attention. Some of them sound a little bit "funny" , like the proposal for compensations. This proposal comes from oil-producing countries, which argue that any developing country that is a major fossil-fuel producer should be compensated for losses in trade resulting from future UN convention commitments.

Other nations are also trying to come up with more flexible approaches. This flexibility includes not only JI but also emission trading and borrowing against the future, by which higher emissions would be allowed now, provided that the country promised to reduce levels in the more distant future. In the last preparatory meeting in October it was also proposed to allow a country that had reduced emissions since 1990 to sell emissions to other countries. To most environmental NGOs, all of this "flexibility" sounds a bit corruptible.

It is hard to predict the outcomes of the upcoming COP 3 to be held in Kyoto, Japan in December, but it may be the last attempt to save the negotiation process - the year 2000 (presently the only agreed target year) is very close, and a global commitment is urgently needed.

Emil Bedi
INFORSE Europe Coordinator

South East Asian NGOs Urges to Cut Emissions

NGO Plea from South to North

CANSEA, a group of 20 environmental NGOs in Indonesia, Malaysia & the Philippines, is extremely concerned that the OECD countries still have not demonstrated their will to reduce greenhouse gas (GHG) emissions within the context of the UN Framework Convention on Climate Change.

A minimum reduction of 20% below 1990 levels by the year 2005 is essential. CANSEA strongly urges the USA and Japan to stop wavering and stake out targets and timetables that will actually help curb global warming, rather than keep coming up with excuses for inaction. President Clinton should not retreat from his recent public statement that the 20% reduction is not only possible for the US but absolutely necessary for the sake of future generations!

South East Asia must Overcome Haze Causes

ASEAN nations have so far not been able to overcome the haze problem which adds more GHGs to the global "soup" by all the fires and other fuel burning leading to the haze. CANSEA is concerned that the ASEAN Haze Committee established in 1994 has failed to curb or prevent the massive fires that have been raging in Indonesia for the last few months. Consequently, these fires have worsened the local air pollution in Malaysia, the Philippines, and Thailand. ASEAN governments must be aware that climatic conditions during this time of the year make their countries prone to haze, such events having occurred almost annually since 1982. But ASEAN nations must also implement year-round efforts to reduce GHG emissions from all man-made sources within their national boundaries. Otherwise, they will only undermine the negotiating position of developing countries in the Climate Convention Negotiations before and at Kyoto!

From Press Release of the CANSEA Steering Committee Meeting, Kuala Lumpur, Malaysia, October 5, 1997.

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150 Countries Agree to Reductions

The EU greenhouse-gas reduction target, approved by the EU ministers of environment, is now supported by China and the developing countries in the G77 group.

This means that almost 150 countries now support the idea that industrialised countries should reduce emissions of CO_2 and other greenhouse gases by 15% from 1990 levels by 2010, with 7.5% of that reduction in place by 2005. Further, most Central and Eastern European countries support the target of 7.5% reductions by 2005, but many of these are reluctant to join the 15% target.
The EU target is probably not enough to avoid large-scale, harmful effects of global warming. A safer path would be to follow the Toronto target of 20% reductions by 2005, and to continue reductions afterwards. The EU proposal, however, is considerably better than the proposals of Japan and the USA.

The EU Commission's proposed means of reaching the reduction target is based on national action plans to reduce greenhouse gases, with a number of EU-wide actions added. The actions include:

- the proposed directive for increased energy taxes (see p.10)
- an increase of renewable energy use from 5% to 12%, as proposed in the EU Green Paper on Renewable Energy (see Sustainable Energy News no. 16 and 17);
- activities to increase the use of cogeneration from 10% to 20% of electricity production by 2010;
- common actions for energy efficiency with standards and removal of barriers.

The effects of the proposed measures are generally evaluated conservatively, and alternative evaluations lead to reduction potentials at least 20% higher by use of renewable energy, at least 70% higher for energy efficiency in industry and 80% higher for cogeneration. The costs of the actions are evaluated to 0.2 - 0.4% of GNP by 2010 (15 - 35 bill. ECU), but benefits not related to climate change are estimated to be about the same (11 - 32 bill. ECU). These benefits includes the value of reduced acid rain, but not that of increased employment from the measures.

Even though it is not part of the EU Commission plan to achieve reductions, the EU proposal, like the US proposal, includes a loophole: Activities Implemented Jointly (AIJ). Within such a scheme, rich countries can make emission reductions in poorer countries and get accredited for those reductions in their national reduction obligations. Most NGOs are against AIJ or want it limited to a small fraction (5%-10%) of reduction targets. With the low costs of reductions in the EU, it is also questionable whether AIJ is cost-effective.

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Drawing: UN Climate Change Information Kit

Japanese NGOs Active and Ready for Kyoto

By Dai Nakajima, Decentralised Energy Research Group, Japan

Demonstration walk and meetings are planed by Japanese NGOs in Kyoto during COP3.
The network of 200 organisations has put a priority on influencing the Members of the Japanese Parliament. Now, the biggest issue is the Japanese Government's proposal.

On the 1st of December, 1996, just one year before COP3 in Kyoto, the Kiko Forum was established at Kyoto. This NGO network, whose name stands for "the climate forum", represents Japanese environmental NGOs through the Climate Convention COP3 process. More than 200 organisations, including our Decentralised Energy Research Group, have joined already. We have been taking a lot of actions through this forum, like meetings with government staff, requests about the reduction target, signature-collecting, etc. And now the biggest issue is the Japanese government's proposal to COP3.

Japans' current proposal, whose target is insufficient, has two weak points: it is written by bureaucrats without citizens' commitment; and it does not consider the scientific forecast. Therefore, it becomes important to encourage politicians, who are ignored by bureaucrats, and to continue appealing to scientific facts.

Kiko Forum has put priority on approaches to Diet (Parliament of Japan) members. Picking up one topic from such actions, the forum sent a questionnaire to all Diet members this autumn and received answers from 34% of them. It is a good result that 80% of the respondents answered that 10% or more reduction is possible in 2010.

Meet People with Concrete Action in Japan !

In the COP3 period, 1-10 December, there will be a lot of events held by NGOs. The Decentralised Energy Research Group is preparing a meeting with Friends of the Earth Japan and some other organisations. The title is *"Solar Initiatives - Potentials for a Sustainable Energy Future."* We intend to gather people who have taken concrete action, like using rooftop PV, and to make the point to the public at large that everyone can take the first step.

Join the Parade-Route Walk!

The biggest and most important event is the *"Citizens' Action"* (English title is not yet fixed) to be started at 14:00 on Sunday, the 7th of December. All concerned are expected to come to the Heian Jinguu shrine and walk a parade route together in the city.

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Japanese Government Must Throw Away its 5% Cut Proposal - say Japanese NGOs

By Mie Asaoka, Kiko Forum, Japan

The Japanese government's 5% emission reduction proposal *ignores scientists' warning* that climate change is already underway and that immediate, significant reduction of carbon dioxide emissions is necessary.

We have no choice but to say that Japan, the president-designate of the Conference of the Parties to the Climate Convention at its third session (COP3), is abandoning the adoption of the protocol in COP3 and leading us to a failure.
The government's proposal is deceiving us in two ways:

- Firstly, its 5% figure for emission reduction is not the bottom line, but the proposed maximum. So it allows most of the countries to reduce by less than 5%. The Japanese reduction rate remains at merely 2.5%.
- Secondly, flexible application of differentiated targets *makes no sense* other than "emissions will not be below 1990 levels until 2012".

According to our research, appropriate policy and action allow Japan significant emission reduction. If the Japanese government is to maintain the reduction rate of 2.5% while including carbon dioxide, methane, and nitrous oxide as well as implementing borrowing, emission trade, and joint implementation with developing countries (elements of the proposal), it simply means that Japan will not reduce GHG emissions from 1990 levels.

The decision-making process for the proposal started and ended within the closed circle among government agencies. It lacked transparency. The government is *not at all* willing to appeal the crises of global warming and necessity of counteraction to the public and is not willing to make prevention policy with public participation.

Kiko Forum is holding symposia and debate meetings to make proposals from citizens for feasible reductions in Japan.

The Japanese government must throw away its 5% reduction proposal, listen to the public opinions, and make an appropriate proposal as the president-designate of the conference.

(Statement of 06.10.'97, shortened by the editors)

Drawing:
UN Climate Change
Information Kit

Brazilian Proposal to Kyoto Is it Ambitious ?

by Emilio Lèbre La Rovere, Latin America INFORSE Coordinator

The main issue in Kyoto is to agree on a target and timetable for the reduction for the greenhouse gases.
The Brazilian proposal is the most ambitious one, which puts the heaviest burden on the historically large emmitters and proposes a fund for sustainable energy for developing countries.

The United Nations Framework Convention on Climate Change (UNFCCC) will convene its third Conference of the Parties (COP3) on December 1-12 in Kyoto, Japan. The main issue on the agenda is the signature of a protocol in response to the so-called "Berlin mandate" within the Climate Convention: setting targets and timetables for the reduction of greenhouse gases (GHG) emissions by Annex I parties (OECD + countries with economies in transition).

Proposal to Reduce 30%

The Brazilian Government's proposal encompasses the main GHGs: carbon dioxide, methane, and nitrous oxide. It sets a goal of limiting the actual Annex I GHG-emission contribution to the increase in global mean temperature according to the following plan:

- constant GHG emissions levels from 1990 to 2000;
- GHG emissions decreasing regularly from 2000 to 2020, reaching in 2020 a level 30 % lower than in 1990.

The compliance with the targets would be checked in every 5 years in 2000, 2005, 2010, 2015, and 2020.

The burden-sharing of these targets among Annex I countries would be based upon the responsibility of each country for the increase of global temperature relative to the entire group of Annex I countries. The relative responsibility in each period would be calculated using a simplified climate model, based on the *historical* contribution of each Annex I country to the increase in the global mean temperature up until the end of the previous period. This procedure is supported by the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, SAR, Working Group I, 1996), the scientific body of experts in climate change. Roughly, the temperature increase over a period of time is a function of the concentration of GHGs in the atmosphere at the beginning of the period and of the GHG emissions path during the period.

Joint implementation of GHG emissions trading would be allowed among Annex I countries. Targets could be achieved individually or jointly.

Clean Development Fund for Developing Countries

The cost of non-compliance with the GHG emissions ceiling commitments would be a financial contribution of 10 US$ per ton of carbon per year of emissions above the limits to a Non-Annex-I Clean Development Fund. The financial mechanism of the UNFCCC (role so far performed by the Global Environment Facility -GEF) would then allocate this resource to support projects presented by developing countries aimed at mitigation of GHG emissions, allowing for up to 10 % of the budget to support adaptation to climate change. The sharing of the funds among non-Annex-I (developing) countries would also follow the same criterion of relative responsibility in the increase of global mean temperature.

Further Reductions Needed

The overall goal for Annex I parties to decrease their GHG emissions by 30 % in 2020 compared to 1990 levels, as proposed by Brazil, would curb the temperature increase even further than the proposals by the European Union (15 % below 1990 levels by 2010) and AOSIS (the organisation of small island states, aiming at a cut of 20 % in GHG emissions by 2005). However, all of these proposals would need to be complemented by further commitments towards GHG emissions reductions later on, if GHG concentrations in the atmosphere are to be stabilized in the long term. Still, the "safe" level of stabilisation remains to be determined.

Is Kyoto the End of the Road?

Nevertheless, it must be recognised that the prospects of reaching any agreement on GHG emissions reduction targets in Kyoto are rather bleak, as of today. Being the most ambitious one, and putting the heaviest burden on historically large emitters, the Brazilian proposal is often dismissed by such countries as "too complex".

Anyway, Kyoto is not the end of the road, and some interesting principles of the Brazilian proposal can be useful at a later stage of the negotiation process within the Climate Convention. Among them is the idea of the Clean Development Fund, which seems the best suited to bring developing countries aboard the effort to mitigate climate change. The proposed allocation criterion directs the focus to the countries in which these efforts are most needed. Based on an IPCC middle emissions scenario (IS92a) China would be entitled to 30% of the fund, India to 8.5%, Mexico to 4.5%, Venezuela to 4%, Kazakhstan to 4%, and Brazil to 3%. These resources would provide a good opportunity to implement sustainable energy strategies in recipient developing countries, supplying the financial support to energy efficiency and renewables programmes.

In any case, the reduction targets and the value of the penalty for the emission of one ton of carbon beyond the ceilings should be sufficiently high to avoid the risk of leaving the larger polluters happy to pay in order to keep their high emissions paths.

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"Too Little, Too Late"

With these and other expressions of concern, Howard Ris of the Union of Concerned Scientists (UCS) in Washington, DC, commented on the recent plan of US president Bill Clinton to combat climate change.

The US plan itself is considerably less ambitious than those of most other industrialised countries, and would not lead to a stabilisation of US emissions at 1990 levels until sometime between 2008 and 2012. Further, the USA demands that developing countries also commit themselves to limit their growth of greenhouse gas emissions.

Even so, US environmental NGOs welcomed the plan's rejection of the massive oil-lobby's proposal of doing nothing, which could be expected to result in a 20-25% increase in US CO_2 emissions over 1990 levels by 2010.

The President's plan would:

- cut taxes for research and development investments of up to $5 billion over the next five years.
- urge companies to reduce emissions by ensuring that they receive appropriate credit for it.
- create a market system for reducing emissions, including international trade of emission allowances, based on the US experiences with acid rain permit trading.
- increase energy efficiency and use of renewable energy in the federal government, which is the largest energy consumer in the USA. As an example, federal facilities should be using 20,000 solar roof systems by 2010.
- increase competition in the electricity industry in a way that leads to lower greenhouse-gas emissions.
- encourage key industry sectors to prepare their own greenhouse-gas reduction plans and remove barriers to energy efficiency that exist within public authorities.

To suggest good alternatives, a number of NGOs, including the UCS, have shown in the study "Energy Innovations" that stronger measures could lead to reduction of emissions to 10% below 1990 levels by 2010 as well as create 800,000 extra jobs, as was also mentioned in the previous issue of Sustainable Energy News. To achieve this, the study includes:

- revenue-neutral financial incentives;
- energy-efficiency standards on buildings, appliances, and vehicles;
- renewable energy standards for power generation (a minimum required share of renewable energy).

Many US NGOs, continuing to work for a stronger US position on climate change, remain optimistic. Howard Ris comments: *"The President has delivered an opening bid. For the Kyoto talks to succeed, the President must be willing to negotiate a more aggressive reduction goal."*

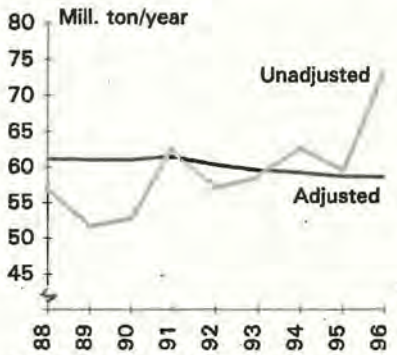
Based on information from: http://www.whitehouse.gov/, http://aceee.org/, http://www.ucsusa.org/ei.exec.html

Danish Dilemma

CO_2 Export Tax needed ?

One of the countries that have been most active in implementing a policy to reduce CO_2 emissions is Denmark. The country also has an ambitious target of reducing its CO_2 emissions to 20% below 1988 levels by 2005 and has a goal of 50% reductions by 2030.

Developments so far have been promising when emissions are adjusted for weather and electricity trade. The emissions are adjusted to reflect the impact of electricity imports: In rainy years, Norway and Sweden have surplus electricity from hydro-power, so, to account for that, emissions from electricity production are adjusted to a situation without electricity trade. These adjustments are necessary to see developments of emissions from year to year. The problems are that these adjustments are not recognised internationally, and that the electricity surpluses have declined in Norway and Sweden since 1990. Last year, a drought in Norway and Sweden forced these countries to import electricity from Denmark to the extent that 40% of the electricity produced in Denmark was net export.



Danish CO_2 emissions 1988-1996.

A solution could be to put a special tax on electricity exports that is based on CO_2-emitting sources, and to use it for an international climate fund as proposed by Brazil and other developing countries. In this way, the emissions from international electricity trade would be counter acted by reductions elsewhere. Probably, it would also make this kind of polluting electricity export uneconomical in the long run.

Source: INFORSE - Europe (see p.10)

Clinton Knows, But...

"We *need people who have the confidence in our ability to break technological and scientific barriers to stand up and say you cannot make me believe that we can't reduce greenhouse gas emissions substantially and still grow the American economy. We could reduce them 20 % tomorrow with technology that is available with no cost if we just changed the way we do things*," said US President Bill Clinton at American University on September 9, 1997. Unfortunately, the official proposal from the USA does not reflect these wise words, and it will take a lot of campaigning to move the US administration and the US Congress towards a position like this. On the other hand, it is the right time to act before and under the Kyoto Conference, which will take place on December 1-12, 1997.

Send an e-mail to president@whitehouse.org, or consult organisations in the US Climate Action Network (see website above) on proposals for action.

EXPO 2000 is Open for NGOs

Sustainable Energy Initiatives are invited to participate in EXPO 2000.

When the World Exposition in Hannover opens its doors to visitors on 1 June 2000, not only will the latest achievements of industry and countries be on display, outstanding projects of the civil society will be there as well.

EXPO 2000 in Hannover with its central theme *"Humankind -Nature - Technology"* has the objective of finding joint answers to urgent global issues such as destruction of the environment.

One of the 4 programs of EXPO 2000, *"Projects all over the World"*, has as a purpose *"to empower people and communities by sharing knowledge about the problems they face and potential solutions which will promote sustainable development into the 21st century"*. This part of EXPO 2000 will show projects that come to grips with problems and contribute to their solutions in an exemplary way. In particular, non-governmental and private-sector organisations, through presenting their projects, will be able to demonstrate to a world-wide audience just what they can achieve. Furthermore, the program will set up a global network of solutions for the future.

Apply Now

Any private, corporate, or governmental body sponsoring or organising an appropriate project is entitled to apply to take part in the Programme *"Projects all over the World"*. This also includes NGOs.

In mid-1997, 1998, and 1999, an international selection commission decides which projects are considered suitable for registration as EXPO 2000 Projects. Besides other criteria, the project must deal with an issue associated with the concept of sustainability/AGENDA 21. The solutions presented should embody the central theme of EXPO 2000, *"Humankind - Nature - Technology,"* and should be related to one or more of the individual themes , such as Energy, Environment, Basic Needs, Health, Nutrition, Knowledge, Mobility or The Future of Work. A project must begin by the year 1999 at the latest to be eligible. Application and registration as an EXPO 2000 Project within the framework of the Programme is free of charge.

The EXPO 2000 Organisations have asked Forum for Energy & Development (FED) in Denmark to help NGOs in formulating proposals for participation in the exposition. If you want to take part in this, please contact FED as soon as possible, and not later than December 1.

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NGO Project Created to Influence Banks

By Ian Tellam, Both Ends

A group of 21 NGOs from all over the world created an informal network of NGOs working to reorient the energy-sector investments of the multilateral development banks (MDBs) towards sustainable energy.

The World Bank, and other multilateral development banks (MDBs), have a history of concentrating on large-scale, capital-intensive energy-expansion projects in their lending operations. Increasingly, they are also recognising the need to promote sustainable energy, and are taking various initiatives to do this. However, it is apparent that these initiatives are barely influencing current MDB energy operations, which are still strongly biased towards supply-oriented and fossil-fuel-based investments. Moreover, there is no significant trend in the MDBs' project pipelines to indicate that reforms are taking hold. This situation made it necessary to initiate an NGO project to monitor, evaluate and influence MDBs.

The MDB Energy Project

Under the "MDB Energy Project", 21 NGOs have joined together in an informal, international network to support independent monitoring and evaluation of MDB energy policies and operations across the globe. The aim is to reorient the energy-sector investments of the MDBs towards sustainable energy.
The Project is planing to:

- Enhance the capacity within existing NGO "MDB networks" to promote sustainable energy lending.
- Undertake independent monitoring and evaluation of MDB energy policies and operations by gathering information, conducting research, and preparing case studies.
- Systematically pool information, knowledge, and resources in an international, concerted, and focused attempt to reform the MDBs' energy-sector activities.
- Undertake national, regional, and international advocacy work relating to the investments of MDBs in the energy sector.
- Reach out to and strengthen informal national networks of NGOs working on energy and MDB issues.
- Collaborate with existing international NGO networks working on issues relating to sustainable energy, climate change, and MDBs.
- Maintain a constructive dialogue between NGOs, parliamentarians, academics, MDB officials, and private firms in relation to the MDBs' energy-sector activities.
- Focus increased media attention on MDB energy operations and sustainable energy alternatives.

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"One Million Initiatives for Sustainable Energy"

An educational project with NGOs, business, and authorities to save the climate, beginning in Senegal.

This project was initially presented at and adopted by the Earth Council at the Rio+5 Forum in March 1997. Its principal objective is to have a significant number of citizen-led initiatives on sustainable energy launched by the year 2001.

The project focuses on small-scale local initiatives. Its main objective will be to inform and mobilise civil society - i.e., non-specialists in the energy field. Concrete actions in a school, for example, might include the installation of equipment run on solar energy, the reduction of energy consumption, photo or drawing competitions, etc.

Activities Started

During the third quarter of 1997, a feasibility study, funded by the Global Environment Fund (GEF), has been undertaken by Energy 21. It has involved government, private entities, and representatives of the civil society in three countries: Senegal, Poland, and Costa Rica. Working sessions in all of the countries demonstrated strong local support for the project.

The next phase will be launched in 1998. It is expected to lead to substantive achievements in a small number of pilot countries.

National - Level Campaigns

The project will call for the participation of a variety of parties within the civil society and public institutions. At the country level, a coalition will be formed for a national level campaign. The coalitions will include:

- Authorities and Councils for Sustainable Development
- Teachers' and other professional unions
- Universities and other educational institutions
- NGOs as well as community-based and indigenous peoples' organisations
- Young peoples' and women's organisations
- Private enterprises, employees' unions, and Chambers of Commerce
- Electric and gas utilities

Global Monitoring

The project will be monitored by an informal international entity. Its mandate will be to promote the creation and development of national programs and to ensure the project's coherence.

It might be necessary to create an International Steering Committee, composed of NGOs and international/regional institutions. A leading role could be played by regional bodies such as the European Commission or the European Parliament, or by global institutions such as the UNCSD, UNDP, UNEP, the GEF, and the World Bank Group.

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New University Degree in Energy and Development

The Energy and Development Research Center of the University of Cape Town in South Africa now announces a Master's Degree in Energy and Development. The 18-24 months program includes, among others;

- introduction to energy policy issues;
- energy markets, operation, failure and regulation;
- relationships between energy, poverty, education, water and development in a South African context;
- self-study modules on policy research;
- final research dissertation.

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Small Renewable Energy Islands Wanted

Many small islands have favourable conditions for renewable energy - but do they use it? To answer this question, an INFORSE organisations is looking for actual and planned renewable energy initiatives on small islands.

While much information has been collected already, we still are looking for other initiatives to get a more complete picture.

Based on the answers, Forum for Energy and Development (FED) will elaborate an overview of renewable energy initiatives on small islands. This overview will be one of the preparations for an international conference on small renewable energy islands that is planned to be held late 1998 in Denmark. The conference is being planned in connection with a government initiative to switch a Danish island with 5,000-10,000 inhabitants entirely to renewable energy sources.

Any information on existing and planned renewable energy projects for small islands is welcome, the sooner the better, as the overview has to be ready in January '98.

✍ *Please send your information to the INFORSE Secretariat in Copenhagen (address, page 2).*

New INFORSE Collaboration Project in Thailand

After a successful preparatory period in 1997, the three-year implementation period of a Thai-Danish collaboration on sustainable energy is starting. The two INFORSE members, Appropriate Technology Association in Thailand and OVE - the Danish Organisation for Renewable Energy, are in charge of the project. It will involve several NGOs in Thailand and in Denmark as well as local communities and authorities in the project area in the Isaan region of Northern Thailand.

The air pollution in Bangkok is often unbearable because of traffic. Photo:OVE

Program Design and Main Outputs

The program has two main elements. The first is to build up knowledge of sustainable energy potentials in north-eastern Thailand (Isaan), renewable energy experiences, resources, and prospects in Thailand as well as prospects for market development of sustainable energy systems. Furthermore, contacts with the local resource base, local authorities, NGOs, and Community Based Organisations will be built. The aim is to involve local communities and authorities in identifying, describing, and, later, implementing demonstration projects.

The second part of the program deals with awareness campaigns, education, and training of NGOs, CBOs, and local authorities in project planning, as well as with production of education and information materials for end users, for primary and secondary schools, and for use in video and slide shows. Lastly in this part, there will be seminars for all involved as well as high-level conferences for politicians and decision-makers.

The project is funded by the Danish Cooperation for Environmental Development (DANCED). It is coordinated from the ATA office in Khorat, where two employees from ATA and one from OVE will work on the project. Preparatory work has been done from the OVE office in Århus, Denmark, and from the ATA office in Bangkok.

The Need for Action

Due to the vast growth in Thailand's economy during the last decade, a dramatic raise in energy consumption has led to an increase in environmental and health-related problems. Particularly in the larger cities, many residents are plagued by respiratory and other diseases caused by the burning of fossil fuels and the air pollution from the heavy traffic.

A major part of Thailand's population living in the rural areas relies on local resources such as fuel wood, charcoal, paddy husk, and bagasse for their basic energy needs. The way of using these resources, however, often is not environmentally sustainable. The excessive felling of trees for fuelwood is a major cause of deforestation and erosion of agricultural land.

Thailand has no significant fossil resources. A great challenge is to reduce the import of energy by exploiting the possibilities of being self-sufficient by combining local energy resources with energy savings.

Information:

✉ *Finn Tobiesen or Ejvin Beuse, OVE, Dannebrogsgade 8 a, 8000 Aarhus C, Denmark. Ph: +45-86760444, fax: +45-86-760544, e-mail: ove@post3.tele.dk*

✉ *ATA, 143/171-2, Pinklao - Nakornchaisri, Bang-Plad, Bangkok 10700, Thailand, fax +66-2-434 3253.*

$50 million for Renewables in Sri Lanka

The Government of Sri Lanka has set up a credit scheme of more than $50 mill. US for solar home systems, mini- and micro-hydro, and windpower.

The credit scheme is set up with the help of a World Bank loan of $24 mill. US and a grant from the Global Environment Facility of $5.9 mill. US. It is expected to add 26 MW of electric capacity, including off-grid solar home systems and village hydro-power. The windpower part will be a 3-MW pilot windfarm. The scheme will provide about 32,000 rural customers (families and business) with electricity.

NGOs, village cooperatives, and businesses are eligible for credits for larger projects (up to 5 MW), and a special grant is available for feasibility studies, etc. for off-grid projects. The scheme will run until the end of 2002.

✉ *Development Finance Corporation of Ceylon, P.O. Box 1397, 73/5 Galle Road, Colombo 3, Sri Lanka.*
Ph: +94-1-440366, Fax: +94-1-440 376.

Baltic Agenda 21

Strategy to be drafted among officials, but with NGOs involved.

Now two workshops have been held for the preparation of an energy strategy of an Agenda-21 plan for the Baltic Sea region. (the Nordic countries, the Baltic countries, Poland, parts of Germany, and Russia). It will lead to a strategy to be adopted by the prime ministers in mid-'98.

During the first two workshops, in June and September, problems and visions were discussed, as well as the concept of sustainability. At the end of the last workshop, the first ideas for an action plan were discussed.

The process now continues with drafting of scenarios and a report with a plan of action. The drafting is done by the energy authorities of the lead countries, Denmark and Estonia. November 21-27 will be the time for comments on the report, and January 15-16 will be the last workshop, probably in Kaliningrad, to reach a consensus on the action plan.

NGOs are invited to participate in the negotiations, and, in the first workshops, representatives of NGOs from the Baltic countries, Denmark, Norway, and Russia participated. The workshops provided a good forum for an open discussion, but it still remains to be seen how far the officials will go towards sustainability with global equity, and a phase-out of nuclear power.

Information:
✉ *INFORSE-Europe (address below)*
✉ *Danish Energy Agency, att. Marie-Louise Lemgart, Amaliegade 44, DK-1256 Copenhagen K, Denmark.*
Ph:+45-33926700, fax: +45-33114743.

Crucial Phase for Energy Conservation Strategy

Within the next few months, the drafting of the new European Energy Conservation Strategy will take place.

The aim is to produce a strategy or White Paper for the Pan-European Environmental Ministers' Meeting, June '98. From November to February, the actual strategy and guidelines will be formulated, to be ready for an official working group meeting scheduled for February 1998, and for a country experts' meeting on March 2-3, 1998. A crucial phase is ahead, in which it will be seen whether the work will lead to a visionary strategy with useful guidelines and a new standard for international cooperation on energy conservation, or whether it will become just another report gathering dust on the bookshelves.

A number of NGOs in the energy & climate group of the NGO Coalition Environment for Europe (with Friends of the Earth, European Environmental Bureau, INFORSE-Europe, and many others) are actively following the development of the strategy. In the coming months, a major focus of the NGO activities will be to follow the development of the strategy. The NGO activities in the energy and climate group take place with the help of an email list for all interested NGOs.

If you would like to join the work, or just to follow it on behalf of a NGO, please let us know, and we will add you to the list. We also welcome information on energy conservation and renewable energy activities in Central and Eastern Europe that can be included in an NGO database of good practices, developed as a parallel activity.

✉ *INFORSE-Europe, Gl. Kirkevej 56, 8530 Hjortshøj, Denmark.*
Ph: +45-86227000, fax: +45-86227096, e-mail: ove@inforse.dk

Consumer Association's New Solar Initiative

Since 1986, the "Association for Energy Consumers" in Germany has helped its members to save energy and money. Now, it has a new initiative.

The Association was formed with the aim of providing a consumer power as an alternative to the powerful utilities, to help members with legal problems, and to inform them about energy savings.

In 1994, the Association started the Phönix Solar Initiative to provide its members and other consumers with solar hot water at a lower price than would be possible otherwise. After three years, this initiative has led to the installation of more than 8,000 solar hot water systems, and thus it is the largest solar initiative in Germany. Now, the price for a system for 3-4 persons (4 m^2 of net collector area,

300-ltr. hot water tank) is 5,000 DM (2,800 US$). If the user installs the system him- or herself, the price is about 30% lower, and many choose to do so.

The Association now has 6,000 members in Germany and cooperates with the INFORSE member Energie- und Umweltzentrum am Deister and is recommended by BUND, WWF, Greenpeace, and EUROSOLAR.

✉ *Bund der Energieverbraucher, Rheinstrasse 8, 53619 Rheinbratbach, Germany, ph+49-2224 92270, fax +49-2224 10321.*

EU Energy Tax

Since the proposal of an EU- wide energy / CO_2 tax was given up, a new, more flexible tax proposal has been placed before the EU finance ministers. In spring '97, the EU Commission proposed to the countries that the existing mineral oil directive be amended to include all fossil fuels as well as electricity. For electricity, the proposed minimum tax is only 0.001 ECU/kWh.

Tax harmonisation needs unanimous agreement among the EU countries, and it is in no way certain that this proposal will come through. The EU finance ministers are now considering the proposal, and their civil servants will develop details and effects for each country. This will probably be in place by mid-98, and an agreement could be reached by the end of '98.

Sources: Draft EU Directive to widen scope of Community Excise tax framework -COM/97/30, and others.

Breakthrough for Decentralised Co-generation

By Preben Maegaard director, Danish Folkcenter for Renewable Energy. Vice-president of EUROSOLAR

Everyone in contact with the Danish energy sector is aware of the sensational breakthrough for wind energy during the last 10-15 years. Oddly enough, few words have been spent on the breakthrough of decentralised co-generation in Denmark in the nineties.

Even in a fishing village such as Klitmøller, you see co-generation plants. Here, they had to start from scratch, laying down the heat distribution net along with the construction of the plant. The 125 homes, the school, etc. receive the heating from a 750-kWel Jenbacher gas motor, a model that has been installed in more than 100 places in Denmark. The electrical efficiency is 40%. You have to enter the building to hear the motor running.

All photos in the article: Jane Kruse, Folkcenter

This breakthrough is coming rather late, but it is really sensational, because decentralised co-generation in fact has been seen as the energy solution of the future since the energy crisis in the mid-seventies - and it is a realistic alternative to nuclear power that was preferred by the government and the utilities up until 1985. As development took off, we were endowed with a wide spectrum of units, from the modest installations in small railway towns, factories and nurseries to impressing plants in towns with30,000- 40,000 inhabitants like Viborg and Hjørring.

I attach so much importance to decentralised co-generation because here we see conventional fossil fuels paving the way for a new, decentralised supply structure, which is a very important precondition for the long-term transition to renewable energy sources.

Complex Energy Systems for a Complex Future

The energy systems of the future are going to be much more complex than those of the past, as many different energy forms will have to work together to ensure a stable supply of electricity and heat. It is clear that wind energy production, on calm days, will approach zero; solar energy is limited to daylight hours.

To achieve an appropriate integration of the natural energy sources, a certain amount of conventional electricity- and heat-producing technologies will be necessary in the medium perspective, and here, decentralised co-generation is relevant. Divided into a lot of separate units, decentralised co-gen can guarantee a quick response to variations in solar and wind energy production, resulting in maximal coverage.

The fuel for decentralised co-gen can be natural gas, biogas, other biomass-gases, and, in the future, hydrogen. In the beginning, the primary fuel will be natural gas, a resource that will be sufficient in supply for a number of decades yet. At a later stage, the conversion to other fuels will be relatively simple. Today, we only have to ensure that the basic structure be decentral. This contrasts markedly with previous schemes. Only 10 years ago, serious plans were made for huge heat transmission lines criss-crossing Jutland.

The Efficiency Parameter

The gas has to be used in a way that allows not only the electricity, but also the heat to be exploited fully, with the highest overall efficiency possible - in good plants, above 90%, of which 40-45% as electricity and about 50% as heat. High efficiency is essential, and not only in the plant. It is energy economy in the places of consumption that will be the decisive factor.

Anything else would be irresponsible, not just now, but especially in the future, when natural limitations on renewable energy resources will make it increasingly necessary to utilize them with a maximal degree of efficiency.

Co-generation Soars

In Denmark, we have installed 1,600 MW of decentralised co-generation capacity in just 6 years, most of the plants using natural gas. In less time than it takes to plan a large power station, we installed small power stations with a total power capacity of 1.5 times the average coal-fired or nuclear power station, not to mention the even larger heat production from these plants.

The technology behind this capacity is, in a number of cases, gas turbines and combined cycle-installations, but the all-decisive novelty is the gas motors, the so-called lean burn motors, of which hundreds have been installed in towns, villages, institutions, industries, nurseries, etc. Most of these installations are owned and run by citizens or district heating cooperatives who utilize the heat and sell the power to the grid. Today, more than 35% of the electricity in the Jutland-Funen-area (2/3 of Denmark) comes from such non-utility installations (including wind turbines), i.e., small power stations that are owned and operated by the private sector. Certain municipalities are more than self-sufficient in electricity.

The power is mainly sold according to a three-period tariff. The government pays 0.1 DKK/kWh, or, for installations larger than 3 MW, 0.07 DKK, in CO_2-compensation, i.e., money that is charged as a tax on electricity and subsequently used for subsidising the new clean technologies that emit less CO_2 per produced kWh. In 1996, the Danish government thus redirected around one billion DKK (150 mill. US$) as a part of its progressive energy policy.

The reason behind this policy is that each time one kWh from a coal-fired power station is replaced with power from one of the new, highly efficient natural-gas-fired stations, the CO_2 emissions are reduced by up to a factor 4! After a future reconversion of the plants to renewable energy gas, the new stations

The co-generation plant at Nr. Vorupør in Thy covers the heat demands of 250 households. As is the case with most other plants, the power is sold to the grid. The plant has two Jenbacher motors, each of 750 kWel. The big tank is the heat buffer/storage. The chimney has been decorated by the artist Bjorn Sondergaard. When necessary, the plant can be converted to run on renewable energy gas.

of course are going to be CO_2-neutral.

Hence, the principle must be to continue the construction of new, decentralised co-gen capacity as long as we still produce electricity in purely coal-fired power plants. By the way, it is not more sinful, in periods of low heat demand, to throw away heat in a co-gen station than to do it all the time in a centralised coal-power plant!

Sturdy, Cheap, and Proven Technology

The new co-generation technology is even cheap to install. A modern coal station with NO_x- and SO_2-filters can be as expensive as 10.000 DKK (1,500 US$) per kW of installed capacity, whereas an advanced motor cogeneration unit costs 5,500-7,000 DKK (800 - 1,000 US$) per kW installed electric capacity (for motor sizes between 500 and 3,000 kWel per unit).

The heart of the technology is the gas motor, integrated into a single unit with generator, heat exchanger, and controller, ready for use. The most important manufacturers of these lean-burn motors are Austrian Jenbacher; Caterpillar and Waukesha from the US; Niigata; German MWM; and, from the Nordic countries, Ulstein Bergen and Wäersilä. All make highly efficient units that have an expected lifetime of 15-25 years.

Here, we are talking about a well proven technology. In Holland, the gas-motor co-gen units were introduced in 1970; in Germany and Switzerland it happened in the eighties.

Breakthrough Due to Industrial Policy

Decentralised co-gen was one out of a number of strategic proposals of a three-year program in 1988-91 that turned out to be one of the last important contributions to Denmark's future energy system from the "Styregruppe for Vedvarende Energi" (Committee for Renewable Energy of the Danish Council for Technology, a committee with a mandate to support renewable energy development with state funds). The idea was that if we were to spark a major development in biogas and other biomass-based gases, a necessary precondition would be a well developed gas-motor sector with service bodies and the lot. And that was what we got.

Once it had been demonstrated and substantiated that the new motor-cogeneration was a well developed technology, ready to be implemented locally, the Danish Parliament followed up with including a 0.10 DKK/kWh economic incentive for decentralised co-gen producers in the energy/CO_2 tax law of 1992. Rapidly a new, important niche in the energy sector was created, to the benefit of the environment and a decentralised energy system. Today, the business' turnover is counted in billion of DKK, with a huge export potential. In this way, the 12 million DKK demonstration project from the Renewable Energy Committee created a new energy policy!

The heat from the plants can be said to be practically a free bonus, making it viable to establish a new distribution net, if one is not already there. This is the background for the many new developments, including brand-new heat distribution systems, that are being established even in villages of a mere 50-100 consumers.

And we have not seen the end yet. Mini-CHP-units of 5 kWel and less are ready for market, the size being suitable for a single detached house. In Germany, 14 producers deliver a range of 27 units of 2.5-30 kWel, fuelled by natural gas, biogas, and vegetable oil. Once the units are mass-produced like cars and other consumer goods, the price is going to be highly affordable.

TOTEM mini-co-generation units were originally developed for emergency supply in high-rise buildings of Milan affected by brownouts in the regular supply, and have been used for many years. Biogas-fuelled TOTEM units are found at sewage plants and farms. At the public institution Enggaarden in Nykoebing Mors, a natural-gas-fired TOTEM unit of 10 kWel was installed in 1994. The power is sold to the grid; the heat is used by the institution itself.

Next step will be mini-CHP

The attractive prices and increasing energy-efficiency demands are going to drive development towards ever smaller co-generation units. In the future, it will not be acceptable that 25% or more of the heat is wasted in the distribution net, heating up streets and pavements. The heat has to be delivered in-house, and this happens most efficiently when the production unit is meters, not kilometres, distant from the radiators. Thus, the individual natural-gas heating, often scorned as a hindrance to co-generation, could prove unexpectedly to be the ideal infrastructure for the next phase of the large-scale Danish energy-efficiency efforts. As the market counts several hundreds of thousands of natural-gas customers, there is basis for a significant industry, at least as big as that of wind power. The export potential is also significant.

Swan song of the large plants?

It is hard to imagine how conventional power plants based on coal or uranium, a kind of hand-made technology, could compete in the future with the gas-based, small-scale technology. In the long run, it is going to be politically impossible to protect the energy monopolies in their present form when there is a technology that is far cheaper and less polluting. We are in for a new energy revolution.

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Hydrogen as Energy Carrier

By Lars Yde, Folkcenter for Renewable Energy, Denmark

With its clean, CO_2-free combustion, hydrogen is an obvious renewable energy carrier to use for transport. Demonstration of this has started in a number of places in Europe.
In Denmark 1.5 mil.$ have been reserved for development of hydrogen technology over the next four years.

Unlike natural gas and oil, which can be pumped from the ground, hydrogen that is to be used as an energy source must be produced in contained quantities in a process that requires energy input from fossil or (preferably) renewable sources. Since it is possible to produce hydrogen by the use of wind electricity, we have here an obvious opportunity to store wind electricity in the form of hydrogen as an alternative to the traditional lead acid battery.

But How Can We Start Using the Hydrogen Technology?

Rather than more papers and theoretical reports, we need demonstration projects showing it in practical use to gain the experience that we need to evaluate hydrogen technology for renewable energy systems.

Hydrogen for Transport

Hydrogen cars belongs on the list of renewable energy transport options, along with electrical railways, electrical cars, and cars using biofuels.

Some European countries have already started. Ten years ago, in Sweden, there was a home power system with a Saab car running on hydrogen produced on wind electricity. In Germany, a M.A.N. City Bus has been operating successfully in the town of Erlangen for test and demonstration purposes, and now it is in regular service in the town of Munic. In Norway, the Greater Oslo Local Traffic Company is trying to initiate a demonstration project that would put four hydrogen buses into regular service.

Danish Experiences

The Folkcenter for Renewable Energy in Denmark is in the midst of a project in which a stationary cogeneration plant will be run on hydrogen produced with wind electricity on days with high wind velocity. A plant like this is a good starting point for development of the technology, because a cogeneration plant operates with almost constant power and there is lots of space for the storage.

The next step in a development scheme could be a bus in regular service, converted for hydrogen. Some buses cover relatively few kilometres per day. There is enough space for the hydrogen vessels on the roof, and the driver can take part in the tests.

The storage tanks on the bus can be refilled at night with hydrogen produced at a bus station with an electrolyser, where pure water by electricity is separated into its two elements, oxygen and hydrogen. Production of hydrogen can be controlled in relation to the local wind conditions and thus can act as an extra load in the local wind-electricity supply system.

The Danish peninsula Thyholm has applied to the Danish Energy Agency to be selected as "The Renewable Energy Island". (see article on page no. 8) Thyholm's scheme features a hydrogen bus as an important element in converting the transport sector to renewable fuels.

✉ *Info: Folkcenter address, see above.*

20 kW hydrogen production facility at the Folkcenter. In the lower right corner is the electrolysis chamber. To the left are tanks for washing and pressure-regulation of the hydrogen and oxygen.

The burning value of hydrogen is 3.5 kWh / Nm^3, which is half of that of biogas. Like natural gas and biogas, hydrogen cannot become liquid by compression, so to compete with fossil fuels regarding energy density, hydrogen has to be absorbed in metal hydrides or compressed to a pressure as high 300 to 400 bar.

Solar Lantern Success

The SOLUX lantern programme is looking for new partners to disseminate its successful lanterns further.

The use of "solar lanterns" is increasing in many developing countries. The lanterns, consisting of electric lamps with batteries, can directly replace kerosene lamps, and when charged with solar cells during the day, they provide clean, renewable lighting during the evening. One solar lantern can save as much as 35 litres of kerosene per year. It benefits a family that only needs, or only can afford, one light.

A number of manufacturers are supplying solar lanterns, but many of these are produced in industrialised countries and were designed originally for weekend camping. One initiative, which has designed a solar lantern for developing countries that is durable under difficult tropical conditions with rough handling, is the SOLUX Program, coordinated by the German Bölkow Foundation and its development organisation, Ludwig Bölkow Systemtechnik. Since 1991, more than 6000 SOLUX lanterns have been produced by this program, in which only the high-technology components and materials are produced in industrialised countries. The lanterns are assembled close to their place of use. Currently, 21 workshops are manufacturing SOLUX lanterns in Africa, in Burkina Faso, Kenya, Namibia, Republic of Congo, Tanzania, Zimbabwe, and other countries; in Asia, in India, Indonesia, and Papua New Guinea; and in Latin America, in Brazil and Bolivia.

The coordinator of the SOLUX program is looking for new partners that are active in the fields of environment and development, and that would like to introduce the lanterns in developing countries, e.g., by setting up new workshops. The larger the total production can be, the lower the prices can be.

Information:
✉ Ludwiênik Gmbh,
Mimlerstrasse.15, 85521
Ottobrunn, Germany,
ph:+49-89 608110-0
fax:+49-89 6099731.

The simple SOLUX system consists of a 4-W PV module and a lamp with battery. It gives 80 lumen of light (4 times an ordinary kerosene lamp) in 3-5.5 hours each night. Parts for such a system cost about 100 US$.

If 10 lanterns are charged by one 40-W PV panel, the system price per lantern is reduced by 1/3.

A larger SOLUX lantern can provide 130 lumen of light and a plug for a radio.

Photo: Production at workshop in Gilgil, Kenya

Publications

🕮 Cogeneration: Policies, Potential and Technologies
Proceedings of COGEN India'96, The First International Cogeneration Conference in India, 10-12 March 1996
Indian pricing and regulatory policy on cogeneration. Views from the government and independent project developers. 10 examples of Indian and 7 examples from international experiences.
Edited by Pradeep K.Dadhich, TERI.
300p, 1997.

🕮 The UNU-TERI Protocol on Climate Change: a Blueprint for Kyoto
Published by The United Nations University and TERI.
40p, 1997.
Contact: TERI, Tata Energy Research Institute, Darbari Seth Block, Habitat Place, Lodhi Road, New Delhi, 110003 India.
Ph: +91-11-4622246, 460-1550, fax:+91-11-4621770, 463 2609, e-mail:mailbox@teri.ernet.in, http: //www.terin.org

🕮 Attracting Private Investment to Sustainable Energy
Proceedings of a Seminar, October 23-25, 1996 Brussels, organised by Energy 21 and European Commission DG XII.
Project finance, direct investments, leasing. Initiatives by project developers/ equipment suppliers, utilities. Performance contracting / third party financing, securitization. 250 p. XII/011/97.
Contact: European Commission, DG XII.
Rue de la loi 200, B-1049 Brussel Belgium.
Ph: +32-2-295-3670, fax: +32-2-296-9823.

🕮 Financing Renewable Energy Projects
A Guide for Development Workers.
By Jenniy Gregory, et.al. from Intermediate Technology Development Group and Stockholm Environmental Institute.
146 p. 1997
Contact: Intermediate Technology Publications, 103-105 Southhampton Row, London WC1B 4HH, UK Ph: +44-1714-369761, fax: +44-1714-362013, e-mail: itdpubs@gn.apc.org.

🕮 Caring for the Future
Report of the Independent Commission on Population and Quality of Life. A radical agenda for positive change making the next decade provide a life worth living. 350 p. 1996
Contact: Oxford University Press, Walton Street Oxford OX2 6DP, UK.

🕮 The Impact of Electricity Market on Cogeneration, Energy Efficiency and the Environment
Study by COGEN Europe, Rambøll Denmark, Ilex Associates, UK.
Analysis and country studies from: Denmark, Finland, France, Germany, Hungary, the Netherlands, Norway, Poland, Sweden, United Kingdom, California USA. 310 p, March 1997.
Contact: COGEN-Europe, The European Association for the Promotion og Cogeneration, rue Gulledelle 98, 1200 Brussels, Belgium.
Ph: +32-2-772-8290, fax: +32-2-772-5044,
e-mail: 101665.1504@compuserve.com.

Events

★ Event with INFORSE participation

November 18-19, 1997★
European Energy Conservation Strategy, Group of Country Designated Experts
Info: UN-ECE, att. Mikhail G. Kokine, Palais de Nations 1211 Geneva 10, Switzerland.
Ph: +41-22 917 1234, fax +41-907 0107,
e-mail: mikhail.kokine@unece.org.

November 19-21, 1997
RIGHT LIGHT 4, 4th European Conference on Energy Efficient Lighting, Copenhagen, Denmark
Info: Gert Nielsen, Association of Danish Electric Utilities, Rosenørns Alle 9, 1970 Frederiksberg C, Denmark. Ph/fax: +45-31-390111/-395958,
e-mail: def@danel.dk.

December 1-3, 1997
SOLAR'97, Canberra, Australia
Australian and New Zealand Solar Energy Society Conference
Info: PO Box 1402, Dee Why, NSW 2099, Australia.

December 3-6, 1997
InterLight '97, Moscow, Russia
3rd International Trade Fair for Lighting and Light Technology
Info: Ost-West Partner, Office Weiden. Ph: +49-9-611480, fax: +49-9-4160399, Office Moscow: Ph:+7-095-2991812.

December 1-10, 1997
Climate Convention, 3rd Conference of the Parties, Kyoto, Japan
Info: Secretariat for the Framework Convention on Climate Change, PO Box 260124,53153 Bonn, Germany.
Ph: +49-228-815-1000, fax: +49-228-815-1999,
e-mail: secretariat@unfccc.de.

January 15-16, 1998★
Baltic Sea Region Agenda 21, Energy Workshop, Kaliningrad, Russia
Info: Danish Energy Agency, att. Marie Louise Lemgart, Amaliegade 44, 1256 Copenhagen K.
Ph: +45-33926700, fax +45-33114743.

January 16-20, 1998
Forum "Forests and Energy", Schneverdingen, Germany
Info: Hof Moehr, Forum Office, 29640,Schneverdingen, Germany, Ph: +49-5199-98921, fax: +49-5199-989-46, e-mail: forests.in.focus@oln.comlink.apc.org, http://www.forests.in.focus.comlink.apc.org

February 5-6, 1998
Climate after Kyoto: Implication for Energy
Info; The Royal Institute of International Affairs, Chatman House, 10 St James Square, London SW1Y 4LE, United Kingdom. Ph: +44-171-9575700, fax: +44-171-321-2045.

March 2-3, 1998★
European Energy Conservation Strategy, Group of Country Designated Experts
Info: UN-ECE, att. Mikhail G. Kokine, Palais de Nations 1211 Geneva 10, Switzerland.
Ph: +41-22 917 1234, fax +41-907 0107,
e-mail: mikhail.kokine@unece.org.

March 5, 1998
World Efficiency Day, Wels, Austria
Info: O O Energiesparverband, Landstr. 45, 4020, Linz, Austria. Ph: +43-732-6584-4380,
fax: +43-732-6584-4383, e-mail: esv1@esv.or.at.

March 8-9, 1998
The 1st European Conference of Renewable Energy on Roofs and Facades, Netherlands
European Media Marketing Ltd, PO Box 259, Bromley, BR1 1ZR, United Kingdom.
Ph: +44-181-289 89 89, fax: +44-181-289 84 84.
e-mail: sustain@emml.co.uk
http://www.emml.com/changing_roof

March 14, 1998
International Day of Against Dams and for Rivers, Water and Life
Demonstrate, Educate, or Celebrate
Info: Aleta Brown, International Rivers Network, 1847 Berkeley Way, Berkeley, California 94703, USA. Ph: +1-510-848-1155, fax: +1-510-848-1008, e-mail: irn@irn.org.

March 23-25, 1998
Global Small Hydro Conference, Hangzhou, China
Info: PO Box 607, Hangzhou, 310006, China.
Ph: +86-571-7055491, fax: +86-571-7055492,
e-mail: hic@pub.zjpta.net.cn.

April 13-17, 1998
International Workshop CUBASOLAR'98, Cuba
Science Development and Solidarity
Info: SOCIE, Calle Luz No. 375, e/ Picota y Compostela. Havana Vieja, C. Havana, Cuba.
Ph: 537-612846, fax: 537-331732 and 332699.

May 25-30, 1998
AGROENVIRON 98, Pakistan
Towards 21st Century,
International Symposium
Info: Faculty of Agricultural Engineering & Technology, University of Agriculture, Faisalabad, Pakistan. Ph: +92-41-3028189/ext 434, fax: 92-41-647846 / 30769.

June 8-11, 1998
Biomass for Energy and Industry, Würzburg, Germany
10th European Conference and Technology Exhibition
Info: WIP, Sylvensteinstr. 2, 81369, München, Germany. Ph: +49-89-7201235,
fax: +49-89-7201291, http://www.wip.tnet.de.

June 18-22, 1998★
Media and Environment Workshop, Denmark
Info: INFORSE (see p.2)

June 23-25, 1998★
Environment for Europe, 4th Pan-European Conference of Environment Ministers (Århus'98), Århus, Denmark
Info: Danish Environmental Agency, Strandgade 29, 1401 Copenhagen K, Denmark.
Ph: +45-32660295, fax +45-32660296,
http://www.mst.dk/aarhus-conference.

June 20-26, 1998 ★
Parallel NGO Events to Århus'98, Århus, Denmark
Meetings, exhibitions, actions
Info: INFORSE-Europe, Gl. Kirkevej 56, 8530 Hjortshøj, Denmark. Ph: +45-86 22 70 00,
fax:+45-86 22 70 96, e-mail: ove@inforse.dk

June 26, 1998 ★
INFORSE Europe Meeting, Århus, Denmark.
Info: INFORSE-Europe - See above.

July 6-10, 1998
2nd World Conference and Exhibition on Photovoltaic Energy Conservation, Wien, Austria
Info: WIP, Sylvensteinstr. 2, 81369, München, Germany. Ph: +49-89-7201235,
fax: +49-89-7201291, http://www.wip.tnet.de.

July 28-31, 1998,
Hydro Vision '98 Reno, Nevada, USA
Exploring Our New Frontiers
Conference and Exhibition
Info: 410 Archibald St. STE 100, Kansas City Missouri 64111-9716, USA.

23-28 August, 1998
ACEEE Summer Study, Pacific Grove, California
Energy Efficiency in Buildings in Competitive Environment,
Info: ACEEE, American Council for an Energy-Efficient Economy, 1001 Connecticut Avenue, NW Suite 801, Washington, D.C. 20036, USA
Ph: +1-202-429-0193, fax: +1-202-4290193,
www:\\aceee.org.

20-25 September 1998
World Renewable Energy Congress V. Florence, Italy
Info: A.A.M. Sayigh, World Renewable Energy Network, 147 Hilmanton, Lower Earley, Reading RG6 4HN, UK. Ph/fax: +44-118-961-1364/-1365.

June, 2000
EXPO 2000 Hannover, Germany
See article on page no.7.

Contents:

Media & Environment

INFORSE Launches Special Initiative

A number of organisations in the INFORSE network participated, in UNESCO's 5th World Conference on Adult Education (CONFINTEA V) in Hamburg in 1997, having been invited by UNESCO to develop the environmental theme in adult education for the next century. These organisations agreed to launch an initiative to help environmental organisations to gain better access to and cooperation with media at all levels. The aim of this is to increase political awareness and the effectiveness of popular education activities.

"Media" was understood as covering traditional media such as drama, storytelling, dance, etc., as well as more 'modern' media such as radio, newspapers, television, video, the Internet, etc.

The initiative will bring together people working with media and with environment to create dialogue and mutual inspiration, exchange information about experiences, and develop cooperation projects. All of this will be done in the framework of a five-year programme.

An INFORSE task force is now preparing a workshop to be the first event in the initiative. The objective of the workshop is to create a platform for a future cooperative programme among environment and media people and to increase participants' knowledge of how environmental education and awareness can be achieved via 'living pictures', i.e., video, film, and television.

The workshop is tentatively scheduled for 18-22 June 1998 in Denmark, just before *"Environment for Europe"*, the 4th Pan-European Conference of Environment Ministers, June 23-26, Århus, Denmark.

The INFORSE Secretariat welcomes proposals and ideas for the workshop as well as for the 5-year programme.
See address on p.2.

Contact List, Europe

In the coming issue of the newsletter (Feb. '98), we will publish the European part of the Sustainable Energy Contact List. For all European contacts, we kindly ask you to check your address on the envelope of the newsletter and your entry in the '97 version of the contact list.

Correction to no. 18!

In the last Sustainable Energy News we by mistake wrote that the lively lady at the photos on the front page and page no. 4 was Ruth Namusubo. The person is RUTH KIWANUKA, Joint Energy & Environment Projects, Uganda.

INFORSE Coordinators' Meeting

On January 26-30, '98, the INFORSE coordinators will meet at ENDA in Dakar, Senegal. Among the topics to be discussed are a new INFORSE Action Plan with follow-up of adult-education activities, south-south cooperation, and new themes for INFORSE cooperation as well as campaigns.

Proposals from INFORSE member organisations are welcome and will be discussed during the meeting. Proposals should be sent to the INFORSE Secretariat, and must be received by January 9, 1998.