



WCRE

World Council for Renewable Energy

**Action Plan
for the Global Proliferation
of Renewable Energy**

2002



ACTION PLAN FOR THE GLOBAL PROLIFERATION OF RENEWABLE ENERGY

Presented by Hermann Scheer, General Chairman, WCRE

■ Considerations

1. The unfulfilled promise of the Agenda 21

Ten years after the "Agenda 21" resolution of the UN-Conference on Environment and Development in Rio – the Earth Summit – the ecological world crisis has become more and more critical. The proliferation of conferences has not led to improved environmental conditions, in spite of the given promise. The environmental conditions of most countries have worsened. The promise to inaugurate the age of "sustainable development" has not been kept. Quite obviously the methods and priorities have to be reviewed. We need new strategies of the Agenda 21 process on global environment and development.

2. The present world energy system as a main reason for the unsustainable world development

The original "Agenda 21" document described the relevant dangers confronting the world civilization. However, the most important root of these dangers was omitted: the lack of energy availability in poor countries and the overwhelming dominance of the use of atomic and fossil energies all over the world.

The relation between the economic development of the third world and the energy-dependency became evident in the oil crises between 1973 and 1982: in this period the debts of developing countries increased from approximately 200 billion to 1.2 trillion US-dollar, of which they did not recover until today. The expected increase of prices, which will parallel the coming oil shortage in the next two decades, will confront developing countries with even more existential problems. Some of these countries already have to spend more on the import of fossil primary energy than they receive from export earnings.

As energy investments of developing countries followed the example of developed industrialized countries, rural areas remained excluded from the access to electricity in most developing countries, because

they could not afford the costly expenditures for the infrastructure of energy transportation. The established energy system of industrial societies was build up in a whole century of economic development, from an agro-cultural economy and rural settlements to an industrial and modern service economy in large urban areas. Simply imitating this and thus imposing an inadequate structure is the main reason for power failures and misleading developments in developing countries. This development accelerated the migration of rural population to such an extent that urban communities grew uncontrollably, increasing the poverty gap between cities and rural areas. Only Renewable Energy sources can allow developing countries to escape this energy trap.

The "Rio Declaration on Environment and development" has recognized neither this intimate link between energy and development nor the direct relation between conventional atomic/fossil energy supply and the vast majority of environmental problems:

- the threat to the terrestrial atmosphere and the world climate;
- the increase of the ozone hole;
- the death of forests and the pollution of waters by acid rain;
- urban air pollution with fatal consequences for human health and the quality of life;
- the toxic contamination of seas, lakes and rivers;
- massive consumption of scarce water reserves in petroleum and coal production and processing;
- the risks of nuclear radiation and unresolved waste storage problems, burdening human civilization for thousands of years to come.

Problems of bio-degradation, deforestation and other vegetation loss over large land surfaces are also linked to dysfunctional energy consumption patterns, because large quantities of biomass used for energy demands are not renewed. Therefore, under the conditions of nuclear and fossil energy use as well as not renewed biomass the target of a "sustainable development" cannot be reached. None of the pending and partly already visible dangers can be overcome without substituting nuclear and fossil energy with Renew-



able Energies. Renewable Energy is the key to sustainable development. It must become the first priority of the "Agenda 21".

3. The link between the energy systems and the development of societies

Cultural and economic progress in the history of human civilization is largely defined by sudden advanced innovation in energy conversion technologies. This applied to the highly evolved classical Chinese culture as much as to the advanced worlds of Mesopotamia, Egypt, Greece and Rome, with regard to irrigation technologies and improved transportation facilities. This applied likewise to the early industrialization in the Middle Ages, powered by water and wind.

It also applied to the Industrial Revolution in modern times, which was made possible by the steam engine, used in production processes, navigation, rail transport – and which continues until today in contemporary steam-powered plants, whether operated by fossil or nuclear energy. The steam engine became the most important fossil energy converter of the 19th century based on coal, and later oil and gas, too: it created the fossil energy economy.

Accelerated by the combustion engine the “fossil revolution” burst across the entire world civilization. It enabled various decentralized applications for consumers emerging as the energy technologies of the 20th century. The atomic energy economy was added to the fossil economy in the second half of last century – carried by the idea that a nuclear era should replace the fossil era.

Renewable Energy were considered just in form of large hydro-electric power dams as a part of modern energy supply. After the oil crisis in 1973 other forms of Renewables were considered as a perspective for future energy needs. However, political institutions – both national governments and the UN system – never pursued this strategy as ambitiously as they pushed forward fossil and atomic energy technologies. In politics, in the economy and in science the potential of Renewable Energy is underestimated until this very day. This is one of the reasons, why the Rio Declaration failed to even grasp the crucial meaning of Renewable Energy for environment and development just as well.

4. The limits of the fossil/nuclear energy system

Today, at the beginning of the 21st century, the world situation is in an energetic deadlock. The situation becomes worse from year to year, the longer the fos-

sil/nuclear energy dominance continues and the substitution by Renewable Energies is delayed. The hopes and promises of the nuclear era were not and cannot be fulfilled. The dangers and risks of the atomic energy - whether those of nuclear fission or those of nuclear fusion - were belittled, ignored, intentionally set aside, and their economic possibilities were dramatically overestimated.

The fossil energy system is developing – with a deadly logic – towards three limits that will increasingly confront the world civilization and each of which leads to existential problems of civilization:

- i) Humankind approaches the exhaustion of conventional finite energy reserves: first oil, then natural gas and later coal. Since fossil energy consumption increases faster than the discovery of new reserves and the world fossil energy system is approaching the final exploitation of the reserves,
 - risks of international political conflicts concerning limited fossil reserves will grow exponentially, and
 - economic damage due to the irreversible increase of energy prices will grow in the next decades along with the dangers of social tensions in national societies and in the world society.

The victims of this development are above all the poor – in rich as well as in the poorest societies.

- ii) Primarily due to the substantial increase of the fossil world energy consumption especially since 1950 the ecological system of the Earth has already been heavily damaged. This demonstrates that the ecological limit will be reached before the limits of energy exploitation.

- iii) The fossil energy system created dependencies worldwide, because the energy sources for the world consumption are concentrated in just a few areas. This makes societies that are dependent on fossil energy imports extremely vulnerable. The dependence on relatively few energy producing regions did not only advance a global process of concentration of the energy economy, but also led to constantly rising costs of the energy infrastructure and increasing trade imbalances. The economies of numerous energy producing countries is one-sided dependent on oil exports. In that way, they are economic, social and political unstable and are exposed to the danger of momentous destabilization.

These physical, ecological and economic limits demonstrate: time is overdue to globally substitute atomic and fossil energy by Renewable Energy. Only with this strategy, the basic needs of all humans for physical and economic power supply can be satisfied, the natural basis of life for all humans preserved, and energy conflicts and the increasing gap between poor and rich



prevented. It was a historical failure of the 20th century that Renewable Energies were disregarded. It would be the disaster of the 21st century, if the change to the Renewable Energy age will not succeed.

5. Renewable Energy: the historical perspective of humankind

The natural and technical potential of Renewable Energies is sufficient to satisfy all energy needs of the world population. The natural potential of Renewable Energies that is available on earth every day is 20,000 times larger than the daily consumption of atomic and fossil energies. Renewable Energies are inexhaustible. They are available to all humans no matter where they live and work.

The technical potential has also been developed so far until today that more energy could be converted than humankind would need. Since these technologies are still relatively young, there is an enormous potential of further technological improvement and new applications. Due to further technical developments, industrial production and multiplied experiences in the use of these technologies within the near future, the certain economic prognosis is that continuous cost depressions will occur.

Renewable Energy technologies are the historical opportunity of the 21st century. They represent practical hopes for a better and more peaceful world. They are the future warrant of humankind. It is of crucial importance that humankind seizes this opportunity to its full extent.

6. Renewable Energy: a possible complete Alternative

Scientific studies documented repeatedly the possibility of a full supply of Renewable Energies to humankind - both to individual countries and worldwide (among others: Club de Bellevue 1978 for France, Studies of Barry Commoner in the 70's and a Pentagon study of 1980 for the USA, the "Solar Sweden study" of 1985 by Thomas Johannson, an IIASA study of 1982 for the European Community and a study of the Wuppertal-Institute of 1999 for the European Union, the Global Energy charter for Sustainable Development prepared by UN agencies and NGOs in 1991 for Rio, the Scheer-Study for the world power supply of 1993 and the Geneva Proclamation and Conclusions of the CLEAN ENERGY 2000 conference). They were never disproved, but considered as utopian, although they relied on the status quo of the technologies already achieved and projected the introduction of these Renewable Energy technologies on to total energy demands.

This optimism can be justified by the experiences of

several technical revolutions: modern technological history shows us many examples of technologies, which were underestimated at the outset to become a dominant mass product only a few decades later (e.g. telephone, cars or computers). Each of them caused structural changes, transforming societies, creating new jobs and displacing earlier technologies and economic strategies. Technologies for the use of Renewable Energy are less complex than those of the air and space industry, than genetic engineering or the use of atomic energy. Humankind and its political and economical leaders have to overcome the fear of the structural change to Renewable Energies, recognizing their benefits for societies.

7. The Benefits of Renewably Energies

The prejudice in the heads of decision makers and in society that the change to the use of Renewable Energies would be an economic burden, which cannot be carried, must be overcome. Instead, the economic, social, ecological and cultural benefits of Renewable Energies must be realized and become the motivating force:

- avoided environmental damages;
- avoided energy imports for every national economy – to the point of replacing the import of conventional energies by domestic Renewable Energies;
- avoided subsidies for atomic and fossil energies, which amount at present around 300 billion dollar annually world-wide;
- avoided health damage and fatalities in humans;
- avoided infrastructure costs – to the point of replacing conventional central energy supply system including their unavoidable distributional transport expenditures with Renewable Energies;
- avoided political, economic and military conflicts on limited fossil energy potentials;
- economic opportunities for new industries and new industrial and craft jobs through production, installation and maintenance of Renewable Energy systems;
- opportunities for revitalising the agricultural and forestry sectors by using biomass as energy carrier and raw material instead of fossil resources, and creating in that way jobs in rural areas that stops immigration;
- opportunities for education, information, health services and agricultural equipment;
- opportunities for stabilizing local, regional and national economies by becoming independent of the risks and uncertainties of global energy markets;
- sociopsychological opportunities to overcome the "no future"-mentality that has begun to have taken hold of many people, because they regard the ecological collapse of the world economy as unstoppable;



- saving water and the possibility to produce and clean economically water with Renewable Energy.

8. Acceleration of the process to introduce Renewable Energies

The use of nuclear and fossil energies can be replaced faster than most energy experts assume. They argue that the introduction of new energy carriers take many decades to establish, based on the experiences of introducing and establishing the coal, petroleum, natural gas and nuclear energy economy.

Since Renewable Energies do not need international infrastructures for the primary energy supply, they can be introduced more readily and swiftly than this was the case with nuclear/fossil energies. Due to their predominantly decentralised nature their introduction can be accelerated further: the planning and construction of a conventional power station takes usually many years, the installation of a wind power or photovoltaic systems just a few days.

9. The Policy-bias of Promoting Energy Systems

The conventional power supply is dominant also for the simple reason that it is politically privileged. This does not only apply to the national energy juridical systems and long-established institutions for energy, but also to the level of international institutions and treaties.

The global promotion of atomic energy is part of the Nuclear Non-Proliferation Treaty of 1970. For the transfer of nuclear technology the IAEA exists since 1957, in the context of the International Energy Agency (IEA) the NEA and in the context of the European Communities EURATOM.

The IEA was established in Paris after the oil crisis in 1973 in order to secure the fossil energy supply of the OECD countries.

The European-Energy-Charter of 1995 is focused on the improvement of trade for fossil energies; it is a contract of international law that was signed among others by the USA, Canada, Russia, Australia and some OPEC-Countries.

The fossil energy industry, which is among the largest industries of the world economy, established strong international governmental organizations, such as the OPEC, and non-governmental organizations, such as the international fossil fuel and electric power associations, which can influence the international agenda more strongly than international associations for Renewable Energies, which still have not developed a significant economic basis and joint lobby.

10. A New Energy Paradigm

Considering the immense importance of energy supply for all societies and the focus on Renewable Energies the message that can be given to the peoples of the world is: the general limitation of energy consumption is not the central concern, but the consistent reduction of limited and environmentally destructive atomic and fossil energy consumption - to the point of being able to do completely without them in the long run. Economic growth without counterproductive environmental damages is possible, if the energy demand is satisfied by Renewable Energies. This is the basic requirement for the creation of sustainable economies.

Therefore, the central concern is a change of paradigm from the fossil and nuclear dependent world economy to a new economy based on Renewable Energy.

Recommendations

Based on these considerations the World Council for Renewable Energy comes to the following recommendations:

1. A consequent new understanding of the "Agenda 21" principles

Principle 1 of the Rio Declaration on Environment and Development of 1992 proclaims that human beings are at the centre of concerns for sustainable development, entitled to a "healthy and productive life in harmony with nature". A realistic understanding of this principle means to recognise the main reason for the life of human beings being endangered by toxic energy sources: they are fatal for human health, the biosphere and the global climate.

Principle 2 acknowledges the sovereign right of states "to exploit their own resources which do not cause damage to the environment of other states". A realistic understanding of this principle leads to the inescapable conclusion that nuclear and fossil energies must be replaced by local and clean energy sources: Renewable Energy.

Principle 4 states, "environmental protection shall constitute an integral part of the development process and cannot be considered in isolation". Principle 7 outlines the spirit of global partnership, "to conserve, protect and restore the health and integrity of the Earth's ecosystem". Principle 9 obliges states to "reduce and eliminate unsustainable pattern of production". All these principles are incompatible with more and more coal, oil, natural gas fired power stations, nuclear power stations, polluting vehicles and buildings. Principle 13 outlines that states shall develop national laws regarding "liability and compensation for the



victims of pollution and other environmental damage". A true sustainable answer to this task of wasting hundreds of billions of dollars annually is investing this money in Renewable Energy, energy saving and energy efficiency. Principle 16 recommends the "internalisation of environmental costs" and that "the polluter should bear the cost of pollution". This obligation leads again to the specific conclusion of overcoming the unsustainable fossil and nuclear energy system as the main cause for pollution, health problems, biosphere degradations, oil leakages, global warming, rising sea level, desertification and radioactivity.

Principle 24 states, "warfare is inherently destructive of sustainable development". Regarding to nuclear/fossil energy systems this leads to the obvious conclusion that political claims on energy resources are causing more and more political conflicts and wars, and the proliferation of nuclear technologies for the peaceful use will improve the weapons technology capability of more and more states.

The "Agenda 21" avoids to express its inherent consequences: the transition to Renewable Energies. Hence, in order to overcome this missing dimension the top priority of the "Agenda 21" has to be placed on the transition to an energy system, which favours Renewable Energy in all possible fields of action: direct energy investments, future climate policy, reform of the Habitat process, health programmes, agricultural policy and development aid policy in general. Therefore, there is a strong need to newly read the "Agenda 21", following these premises.

2. A Renewable Energy Proliferation Treaty

We suggest a supplementary protocol to the Nuclear Non-Proliferation Treaty (NPT), which should be passed at the Review-Conference by the signatory States in 2005. This supplementary protocol should permit the signatory States to fulfil their obligations stated in Article IV of the NPT by supplying technical aid in form of Renewable Energy Technologies. Art. IV of the NPT guarantees technical aid to the states, which commits them to renounce nuclear weapons and use nuclear energy peacefully, and obligates the nuclear weapons possessing states to offer this technical aid. Thus, the atomic technology is the only energy technology, for which an international proliferation obligation exists. The NPT legitimises the existence and work of the IAEA.

The supplementary protocol in form of a Renewable Energy Proliferation Treaty should be the basis of an international treaty for the introduction of Renewable Energies and internationally legitimise an International Renewable Energy Agency (IRENA). The WCRE will suggest this supplementary protocol prepared by

EUROSOLAR to the signatory States of the NPT. It will organise an international colloquium concerning this proposal in 2003 in order to discuss all issues in relation with the subject.

3. An International Renewable Energy Agency

Among international organizations one is missing which concentrates with its entire strength on the promotion of Renewable Energies and constitutes with regard to that the international point of reference: an International Renewable Energy Agency (IRENA). The contradiction must be overcome that the IAEA – supported by membership fees from governments – promotes with its "Technical Development Programme" the international proliferation of atomic technologies, while there is no comparable international organisation for Renewable Energies.

The function of an IRENA was described at the EUROSOLAR conference "Promoting international transfer of Renewable Energies" in June 2001 in Berlin. The WCRE appreciates the fact that the German parties in government recommend in their current programmes the establishment of an IRENA and encourages the German government to take the international initiative for the establishment of such a governmental organization. The function of this agency is in particular to assist in building "human capacity" in the field of Renewable Energies, including co-operation by establishing "Centers for the Application of Renewable Energies" on a regional level for the transfer of technology.

4. Conversion of conventional energy subsidies and public incentives to Renewable Energy promotion

The approximately 300 billion dollars of energy subsidies spent annually on nuclear/fossil power are four times of what has been spent on the promotion of Renewable Energies over the last 20 years. These energy subsidies are in contradiction with the very spirit of the World Trade Organization. They serve the protection of certain branches of the energy industry, in particular in the area of coal and nuclear power. In addition, social reasons exist to give energy users access to economical energy. Therefore, it is not realistic to expect a fast reduction or cancellation of these subsidies.

Furthermore, it is necessary to convert present expenditures on energy research and development totally in favour of Renewable Energy. Today in the OECD 80% of energy research expenditures are spent for nuclear fusion and fission – an energy option which provides only 5% of the world primary energy consumption. Even optimists among scientists research-



ing on nuclear fusion do not expect a breakthrough of this technology until 2050, which is too late as an emission free energy option.

However, the contradiction between high nuclear/fossil energy subsidies and marginal public support for Renewable Energies must be overcome. The path to it is the gradual conversion of these subsidies into Renewable Energy promotion programs. This includes that development policies of industrialized countries and credit policies of international development banks within their energy portfolios put the absolute emphasis on Renewable Energies.

5. Setting global and national targets and strategies for the introduction of Renewable Energies, based on best-practice experiences

The WCRE appeals to the governments to determine national targets to increase the share of Renewable Energies on their energy supply – following the example of the European Union, which decided to double the share of Renewable Energies until 2012.

The WCRE recommends to establish national targets of minimum 2% annual Renewable Energy growth. The most appropriate political step to reach these minimum targets is a legal framework to put Renewable Energies from domestic sources first in relation to nuclear/fossil energies. This includes,

- a guaranteed minimum feed-in reimbursement in the current sector for Renewable Energies to make private investments profitable;
- energy tax exemption for Renewable Energies;
- public construction regulations for the installation of Renewable Energy systems into new and reconstructed buildings;
- promotion programs for Renewable Energies through low interest credits.

Such a legal framework proved to be more effective than the fixing of introduction quotas. The broad promotion of all Renewable Energies and certainty for investment are not easily attainable in ways that involve a competition between technologies against simple quota. In addition, investment criteria are in the centre of interest, which considers only current capital costs, but not the costs avoided on a long-term basis.

6. Global Industrial Norms and Standards

In order to enable a rapid development, it is necessary to introduce industrial norms and standards. That way, a compatibility of different technical components can be achieved and trade of Renewable Energy technologies facilitated.

The WCRE appeals to the UN to advance the standardisation of norms within the ISO with special attention and under participation of experts from all continents. The WCRE refers in this context to a memorandum by G.Grob, ICEC, Switzerland, the “Convenor of Methods for analysis of Technical Energy Systems ISO/TC203/W63”.

7. A new Approach to Energy Statistics

Energy statistics of countries and institutions are based on different indicators, which make international comparisons questionable. This does not only apply to different evaluations in the relation between primary energy and secondary energy of different energy carriers. It applies in particular to energy chains from drawing to the final consumption of energy. Therefore, the actual losses of energy of the nuclear/fossil energy chains are not recognizable in today's energy statistics. "Grey energies" and Life Cycle Analyses are not transparent either. For that reason, ecological and economic advantages of Renewable Energies and the demand of non-energetic resources, e.g. water consumption during the drawing and conversion of energy, do not become obvious. Thus, energy predictions have a doubtful value. Non-commercial primary energy such as solar radiation and wind power is not listed in conventional energy statistics. Biomass is listed as Coal, i.e. solid fuels, in the widely used IEA statistics. There are extremely different statements and omissions about the energetic potential use of biomass.

The WCRE calls upon the UN to develop together with ISO/TC203 and the national statistical offices a new energy statistics data base and forecasting methods, which includes all energy sources in order to allow a consistent overview about the real energy potential and to make complete energy planning and forecasting possible, taking also all energy transport option into account. The WCRE will develop its own proposals concerning this matter.

8. Complete Emission Measurements for the Clean Development Mechanism and Emission Trading of the Kyoto Protocol

As long as no complete analyses of the energy flow of fossil/nuclear energy carriers and their losses and emissions exist, the Clean Development Mechanism and emission trade cannot work. As quantified emission reductions are measured only by the efficiency of power stations or engines, they permit rewards for emission reductions even when primary energy is increased due to longer transport distances. The actual ecological advantage of Renewable Energies is undervalued within this isolated calculation.



The WCRE calls on the governments to permit only such Clean Development Mechanisms, which are based on a complete calculation of emissions of energy carriers. Beyond that, it requests the World Trade Organization to develop in cooperation with ISO environmental standards for energy trade considering all energy emissions. These are to permit all countries to limit the free energy trade to such carriers, which do not fulfil this measure criterion. Hence, all domestic energies with small transportation efforts and above all Renewable Energies would be automatically privileged.

9. Suspension of trade barriers for Renewable Energy Technologies and Efficiency Technologies

The contradiction must be overcome that international trade with fossil primary energies is subject to fewer limitations than the trade with Renewable Energy Technologies and Energy Efficiency Technologies. This leads to the fact that this one-sided liberalisation of the world trade intensifies the global environmental crisis. The WCRE requests the World Trade Organization to generally exclude tariffs from these technologies.

10. Aggressive financing for Renewable Energies with zero- and low interest rate investments

The WCRE calls on national and international development banks to start an offensive to finance Renewable Energy and Energy Efficiency by allowing zero-interest-rate and low-interest-rate grants. This financing initiative must include co-operation with private development banks, solar banks and Renewable Energy investment funds, which are active on local level.

11. Integrated Strategies of UN-Organizations

The mobilization of Renewable Energies does not only refer to the separate sector of the energy industry. The economic and ecological advantages of Renewable Energy result in particular from concepts for resource planning, agriculture, forest maintenance and economy, construction, city planning, avoidance of health damages, measures to fight desertification, population planning and for the protection of biodiversity.

Therefore, the WCRE calls upon the United Nations and their organizations to integrate the promotion of Renewable Energies into the implementation of their original tasks as the UNEP with its environmental programmes already does:

- at the FAO into the promotion of agriculture;

- at the UNESCO into programmes of education and science;
- at the UNIDO into programmes of industrial development;
- at the UNDP into its promoted development projects;
- at the WHO into programmes for health recovery.

The production and use of Renewable Energies can make an indispensable contribution to the prevention of desertification and to the protection of forests by realising the transition to agro forestry instead of further forest clearing.

12. Conversion Strategies for Fossil-Energy-Producing countries

The global conversion from fossil to Renewable Energies will expose most fossil fuel exporting countries to an extreme structural change. It is necessary that these countries adjust to it in time and receive support by the international community to do so. Fossil energy exporting countries need to be interested in lowering their dependency on export earnings and in adjusting their economies to that. Importing countries should be willing to support the interest of exporting countries on stabilising incomes by scarce energy costs in order to make the gradual abandoning of the fossil energy production. The prospect that in coming decades these fossil energy exporting countries turn into those of hydrogen exporting, produced by solar power plants, can hardly be realized due to the overwhelming capability of today's energy importing country to use Renewable Energies from indigenous resources. The more realistic prospect of today's energy exporting countries is to become producers for new energy technologies and to revitalise their agriculture and forestry by, for instance, regreening of deserts in the Middle East or North Africa with the help of seawater desalination. Additionally, this includes the production of raw materials of plants for the coming world demand of the chemical industry on non-fossil hydrocarbons.

Renewable Energy: A Strategic Project

With this historical change to Renewable Energies humankind is in a race against time. Although many options of Renewable Energies are already established and practically at work, global energy demand increases faster than the introduction of Renewable Energies. This demonstrates that the introduction of Renewable Energies needs to be substantially accelerated – based on political "best practice"-experiences. For this, it is necessary to declare the change to Renewable Energies as the strategic project of the future – on national as on global level, supported by an increase of energy efficiency.



CHAIRMEN-COMMITTEE

of the World Council for Renewable Energy (WCRC)

■ **Hermann Scheer** (General Chairman)

MP/ President EUROSOLAR
Platz der Republik 1
11011 Berlin, Germany
Phone: +49 - (0)30-227-73834
Fax: +49 - (0)30-227-76528
e-Mail: hermann.scheer@bundestag.de
www.hermann-scheer.de

■ **Wolfgang Palz** (Europe)

Paradijsvogelslaan 71
B-1160 Brüssel, Belgium
Phone: +32-495250209
e-Mail: palz.w@wanadoo.be

■ **Stephen Karekezi** (Africa)

AFREPREN/FWD (African Energy Policy Research
Network)
P.O. Box 30979, Elgeyo Marakwet Close
00100 GPO, Nairobi, Kenya
Phone: +254-2-566032 or 571467 or 570145
Fax: +254-2-561464 or +254-2-566231
e-mail: Skarekezi@form-net.com OR
stephenk@africaonline.co.ke www.afrepren.org

■ **Ibrahim Togola** (Co-Chairman Africa)

Director Regional, Mali Folkecenter for Renewable
Energy
P.O. Box E 4211, Bamako
Republic of Mali
Phone: +223-2-00617
Fax: +223-2-00618
e-Mail: mali.folkecenter@afribone.net.ml

■ **Rakesh Bakshi, LFIMA, FIE** (Asia)

Chairman, RRB Consultants and Engineers PVT.LTD.
189, Sukhdev Vihar
110 025 New Delhi
India
Phone: +91 11 68 83 83 65
Fax: +91-11-6835160
e-Mail 1: rrb@gndel.global.net.in
e-Mail 2: sooryapawan@rrbindia.com
www.rrbindia.com

■ **Peter Droege** (Australia/Pacific)

MRAPI AAIA Chairman, Renewable Energy
Foundation Ltd.
DEM, PO Box 63
Northbridge NSW 1560, Australia
Phone: +61-2-8966-6000
Fax: +61-2-8966-6222
e-Mail: droege@solarcity.org
www.solarcity.org

■ **Michael Eckhart** (Americas)

President, SolarBank Program
Solar International Management, Inc.,
1825 I Street NW, Suite 400
Washington DC 20006
USA
Phone: +1 202 - 429 - 2030
Fax: +1 202 - 429 - 5532
e-Mail: eckhart@solarbank.com
www.solarbank.com

■ **Preben Maegaard**

WCRC Coordinator for Renewable Energy Grass-
roots Initiatives
Director, Danish Folkecenter for Renewable Energy,
Kammersgardsvej 16, Sdr. Ydby
7760 Hurup Thy
Denmark
Phone: +45-97956600
Fax: +45-97956565
e-Mail: pm@folkecenter.dk
www.folkecenter.dk

■ **Angelina Galiteva**

WCRC Coordinator for Renewable Energy
City Initiatives
Executive Director – Strategic Planning
(GreenLA, Environmental Affairs and New Product
Development)
Los Angeles Department of Water and Power
111 North Hope Street, Room 1551
Los Angeles, California 90012
Phone: (213) 367-1577
Fax: (213) 367-3202
e-Mail: galiteva@aol.com



M i s s i o n

- The WCRE is a global voice for Renewable Energies.

O b j e c t i v e s

- Communicating the urgent and global need for Renewable Energies and their availability for all energy demands;
- Analysing the international barriers to Renewable Energies and preparing proposals to overcome these;
- Documenting experience of initiatives for Renewable Energies and communicating best-practice examples world-wide;
- Evaluating the advanced technological opportunities and applications of Renewable Energy Technologies

M e a n s

- Supporting the creation of an International Renewable Energy Agency (IRENA);
- Organizing the "World Renewable Energy Forum";
- Stimulating international organizations and governments for the creation of Renewable Energy Policies and Strategies;
- Informing globally on Renewable Energy activities and projects.

World Council for Renewable Energy (WCRE)
c/o EUROSOLAR e.V. · Kaiser-Friedrich-Str. 11
53113 Bonn / Germany
Phone: +49 (228) 36 23 73 · Fax: +49 (228) 36 12 13
E-mail: info@wcre.org
Internet: www.wcre.org



Papers and Documents of the

**International Impulse Conference for the Creation of an
International Agency for Renewable Energy (IRENA), 2001**

and of the

**First World Renewable Energy Forum: Policies and Strategies
"Renewable Energies - Agenda 1 of Agenda 21", 2002**

CONFERENCE DOCUMENTATION

I order

copy/ -ies of the conference documentation „**Promoting Global Transfer Activities for Renewable Energy**“ 2001

Price: 18,- € (Members of EUROSOLAR or the World Council for Renewable Energy: 15,- €)

Name, First Name _____ Membership-No. _____

Street, Zip Code, City, Country _____

Date, Signature _____

Please mail or fax to: EUROSOLAR e.V., Kaiser-Friedrich-Str. 11, D-53113 Bonn, Fax: ++49 (0)228-361279



CONFERENCE DOCUMENTATION

I order

copy/ -ies of the conference documentation „**First World Renewable Energy Forum: Policies and Strategies**“ 2002

Price: 25,- € (Members of EUROSOLAR or the World Council for Renewable Energy: 20,- €)

Name, First Name _____ Membership-No. _____

Street, Zip Code, City, Country _____

Date, Signature _____

Please mail or fax to: EUROSOLAR e.V., Kaiser-Friedrich-Str. 11, D-53113 Bonn, Fax: ++49 (0)228-361279

