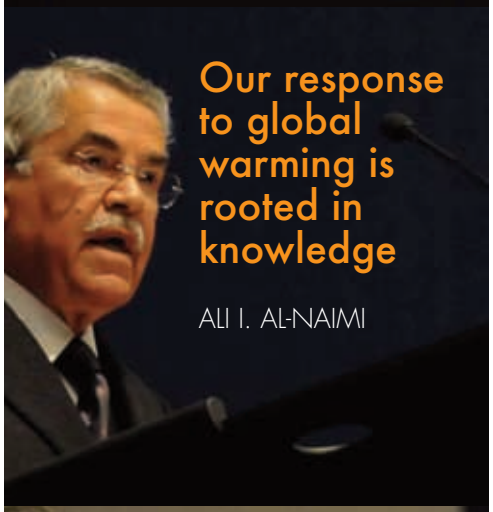
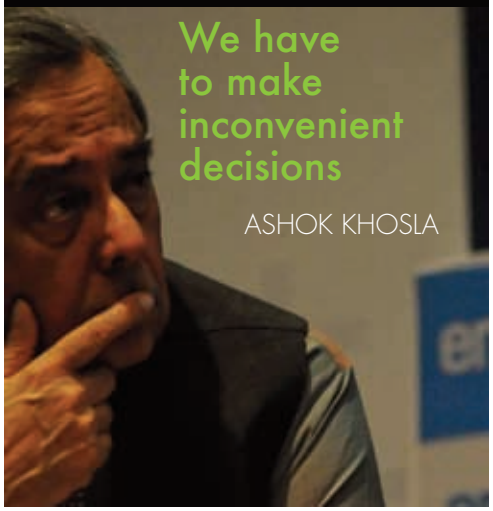
energypact
CONFERENCE NEWSLETTER
Geneva, March 16-17, 2009

First annual multi stakeholder conference on the global issues of ENERGY, ENVIRONMENT and DEVELOPMENT

The Energy Pact Foundation organized a major conference on the broad topic of Energy-Environment-Development in Geneva on 16-17 March 2009.





The nexus between energy, environment and development is central to Energy Pact Foundation's mission and raison d'être. This interrelated set of complex issues requires integrated and farsighted approaches at the global level that are also inclusive of the interests of countries at all levels of development. Currently, however, such approaches are still in their infancy and specialized sector-specific approaches and practices tend to prevail. Different players pursue their objectives and agendas, often at cross-purposes and without concern for the broader picture.

Significantly, the interrelationships between energy, environment and development have moved to the top of global agenda and have acquired geo-strategic importance.

The Energy Pact Foundation has been established to serve as a meeting point to facilitate the airing of the perspectives and interests of different communities and stakeholders – whether the North, the South, governments, international organizations, NGOs, business and finance, scholars, scientists, engineers, thinkers, and common citizens, in the hope that this will contribute to the evolving process of dealing with the energy-environment-development issues in an integrated manner and as a single global challenge.

Geneva, the birthplace and home of so many intergovernmental and non-governmental organizations, venue of key global conferences, and a major international business and banking centre was considered a highly appropriate location for the Foundation, especially in view of the interest and support of the Geneva and Swiss federal authorities.

Judging by the interest and response of both the participants and audience (which numbered 700) from different perspectives and backgrounds, the Conference on Energy, Environment and Development, the Foundation's first public activity was a success. It demonstrated the value of such a forum at a time when the international community is entering a new phase of closer multilateral cooperation required by the gravity of global problems, such as the current world financial/economic crisis and the mounting concern over global warming and its implications. The Conference proceedings will be taken into account in consolidating and orienting the Foundation, strengthening it institutionally and financially, and planning its work and activities for the coming period. The Foundation intends to continue to provide a forum for the airing and debating of views, and to act as a source of ideas and initiatives, with sufficient agility to be able to respond to needs and change.

The introductory overview of the Energy-Environment-Development triadic relationships, which follows, highlights some of the dimensions involved in this intricate subject matter. It draws in part on the Conference deliberations illustrated by a sample of excerpts from some of the many valuable and interesting remarks made during the proceedings by the participants.

For extensive coverage of the Conference and its proceedings consult the Foundation's website

www.energypact.org

MANAGING ENERG
DEVELOPMENT GLO

A pioneering venture for the international community

AN OVERVIEW OF THE ISSUES

INTRODUCTORY CONCEPTS

- ENERGY enables modern society, indeed civilization, and the world economy to function and sustain itself by fuelling industrial, agricultural, commercial, transportation, power generation activities, as well as by providing for habitat and subsistence needs.
- The ENVIRONMENT provides sources of energy, air, water and other resources needed to sustain life and enable the continued functioning of society and the economy.
- DEVELOPMENT is the socio-economic process that shapes and manages human society and the economy in a manner that satisfies the material and other needs of the world's population, while enabling the international community to evolve through mutual cooperation and co-exist in peace. The realization of economic and social development depends on the availability of adequate energy, which can only be assured by drawing on the environment and natural resources and through advances in science and technology (S&T). The necessary harmonious relationship with the environment can only be attained through policies that include sound energy policies, promote sustainable lifestyles and sustainable development, and that themselves combine appropriate social and organizational responses, adequate financing, and S&T theoretical advances and innovation, and their application.

The complex clusters of issues manifest themselves in specific ways within individual states and geographical locations. They are also the subject of both cooperation and controversy in international relations.

- Without ENERGY economic development and modern society would not be possible. The increased growth in the use of energy and rising worldwide demand for energy resources (old and new) in response to growing needs not only sharpen the traditional geopolitical issues given rise by the quest for access to and control of such resources, but also pose major new problems for society due to the environmental impacts associated with energy uses, including climate change and global warming. All have serious implications, including the potential to undermine prospects for further development. Fossil fuels are non-renewable. They still meet most of the global demand for energy, and are likely to do so in the foreseeable future. However, as they are potentially exhaustible, they will need to be supplemented, and eventually replaced by alternative, renewable energies developed through research and development (R&D) and S&T advances.
- ENVIRONMENT is the source of both renewable and non-renewable energy. However, the environment is increasingly impacted by energy exploitation and uses, and in general by human activities, economic growth and development. The environmental limits and constraints need to be taken into account and respected, as is the case with global climate change.
- DEVELOPMENT, both economic and social, makes it possible to attain and sustain a number of societal needs, goals and expectations of modern society around the globe. However, by its very nature, development makes demands on the environment, including through the quest for and use of energy. This can degrade the environment, which, in turn, can both undermine the development of large parts of the globe and possibly put at risk the sustainability of modern civilization.

Today, these three domains continue to be largely managed as separate issues. Given their interdependence, global significance and consequences, it is urgent that they be dealt with as an interdependent Energy-Environment-Development (EED) problematique. The resulting highly complex, tangled sets of interrelationships call for global reasoning and approaches.

ENERGY, ENVIRONMENT AND DEVELOPMENT THE NATURE OF THE CHALLENGE

The EED challenge facing the world is both highly complex and momentous. In essence, however, it can be posed as follows:

- How to secure in an equitable and sustainable manner a sufficient and adequate supply of energy to meet the steadily increasing demand from energy- and resource-intensive economies and societies while accommodating the energy needs that will arise on the transition of those still living in poverty and subsistence to higher living standards and also meeting the needs of the growing world population, projected to reach 9 billion by 2050.
- How to avoid or minimize the negative impacts of energy on the environment, both by mitigating or eliminating the impact of the exploitation and use of existing energy sources, especially fossil fuels, and by developing alternative, renewable, environment-friendly energy sources that help meet the potentially substantial increase in demand. This requires building-up production, transportation and distribution networks, as part of the transition to alternative energies and energy systems.
- How to improve the efficiency of energy use by the whole economy and society and by individual citizens so as to reduce their collective environmental footprint, and modify the patterns of production and consumption and the associated lifestyles implicit in or promoted by current development policies, and economic growth.

GY-ENVIRONMENT-OBALLY

- How, in a highly unequal and fragmented global community, can appropriate international mechanisms and regimes, based on differentiated responsibilities and equitable distribution of costs and benefits, be devised, negotiated and implemented.

Efforts to achieve the above imply major changes and discontinuities of an ideological, political, economic, social and cultural character that constitute significant departures from the existing system. Major S&T efforts which will be also needed to attain many of these qualitative and quantitative goals, as will purposeful innovation policies and practices.

In the current global setting, the above objectives may seem far-reaching and unrealistic in scope and with respect to their implications. Yet, in a number of developed countries, and in regional groupings in the North, some efforts of this nature are underway, though with varying degrees of success. The North, however, is not and cannot remain an island unto itself, isolated from and unconcerned with the rest of the planet.

To be meaningful, any new approach must be global in character and scope, not only because the North draws on global resources, including those in the South, and impacts the global environment the most in order to sustain itself and its way of life, but because such an approach is essential if the peoples of the South are to achieve widespread economic development, especially the 3 billion who continue to live in marginal and subsistence conditions that trap them in dire poverty. In essence, to end widespread poverty and underdevelopment requires global efforts to revive and update the international development agenda.

Ultimately, the overarching imperative is for the international community to:

- ENSURE THAT THE CHALLENGES POSED BY THE ENERGY-ENVIRONMENT-DEVELOPMENT TRIAD ACT AS A POSITIVE FORCE FOR CHANGE AND ARE DEALT WITH IN A COOPERATIVE AND PEACEFUL WAY AS A JOINT GLOBAL UNDERTAKING;
- ENSURE THAT THE APPARENT CONTRADICTIONS POSED BY THE EED CHALLENGES DO NOT BECOME A SOURCE OF CONTINUED DOMINATION BY THE POWERFUL, OR OF CONFLICT, AGGRESSION, AND WAR ALL OF WHICH UNDERMINE KEY DEVELOPMENT AND ENVIRONMENT OBJECTIVES AND PERPETUATE SOCIAL AND GLOBAL DIVISIONS, ULTIMATELY THREATENING THE FUTURE OF HUMANKIND.

To pull together various threads and deal with them as an integrated,

global set of issues will be an unprecedented, pioneering venture.

CHALLENGES TO BE CONFRONTED

The following challenges facing the EED undertaking are complex and

demanding:

- Substantive and practical: the many contradictions and trade-offs that exist between energy, environment and development objectives and agendas pose a major challenge to policy makers.
- Geo-political: differences in levels of development and divides rooted in the age of colonialism and imperialism still present a number of unresolved issues and North-South controversies regarding the international development agenda and the management of the world economy. These differences have been accentuated by propagation of neo-liberal model worldwide.
- Political, social and cultural: due to the changes needed in existing structures and relationships that underpin different societies, the global system, and dominant lifestyles.
- Conceptual and methodological: long-term time-scales, spatial dimensions that usually do not coincide with political borders, and global objectives and interests that do not figure in national or corporate decision- and policy-making, combined with ingrained, difficult to change mindsets regarding ways of doing things.
- Scientific: uncertainties regarding environmental and related developments, disagreements in the diagnosis of problems, and lack of sufficient knowledge to underpin uncontested solutions.
- Institutional: Appropriate policy-making and operational mechanisms still lacking, especially at the global level, and sectoral organization of society, economy and infrastructure.
- Economic: a myriad, often conflicting, interests, ranging from global to local, public to private, short- to long-term.
- Financial: high cost of necessary investments, and the many competing, usually urgent claims on what as a rule are insufficient financial resources, pose serious economic and political dilemmas.
- Technological: the technological solutions to many existing or imminent needs and problems do not exist and will require major, sustained, costly R&D efforts, and often long lead-in periods.
- Ideological and paradigmatic: if the EED nexus is to be dealt with satisfactorily it must be an undertaking of the entire international community, based on collective/common interest, not to be left to a wholly unregulated market mechanism and business rationale that are bereft of policy and social guidance and public intervention.

AN EED ROAD MAP: ESSENTIAL ELEMENTS

To deal with EED challenge a long-term vision and effort over the next five decades as a minimum is required, with a sign-posted road map to provide strategic orientation, the latter being subject to revision in the light of experience and major new developments. The following key elements provide a starting point, recognizing, however, that the conflict and contradictions they present constitute a continuing challenge that will need to be addressed:

- Avoid and resolve North-South political and development tensions and conflicts, some of which result from the long-standing inability to agree on an international development agenda and on the geo-strategic considerations related to natural resources, including energy, while others are emerging from new issues such as how to approach climate change.
- Establish appropriate machinery for dealing with the EED triad at the global level and develop related basic principles of procedure.
- Evolve science & technology solutions for different renewable and/or alternative energy scenarios, including rendering fossil fuels environmentally friendly and their uses more efficient, for the protection of the environment, for sustainable lifestyles (transport, food systems, habitat etc.).
- Revise global intellectual property rules and establish funding facilities to make S&T solutions available as global public goods.
- Develop preparedness for global responses by the international community to adapt, alleviate, remedy or counter the likely consequences of climate change in the developing world (including the shifting of agricultural zones, melting of glaciers, rising sea level, flooding of islands and coastal areas, extreme weather).
- Encourage changes in patterns of development and lifestyles, including both production and consumption, by means of corresponding domestic and international policies, education, regulation and structural changes in harmony with the objectives established by the international community.

LONG TERM VISION

Widespread public awareness of the need to move in the directions suggested above can only be developed gradually. Similarly, acceptance and internalization of the need for change and new approaches by both national and global policy establishments will take time and effort.

FUTURE TASKS

In addition to the continued economic growth and rising world population that generate increased global demand for energy, efforts to bring those living precariously on the margin of the economy into the mainstream and end global poverty are likely to add to global energy needs. Furthermore, in order to develop diverse sources of safe, clean and green energy in the quest for sustainable development, a number of urgent tasks present themselves. These include:

- Exploring for and exploiting additional, difficult to reach reserves of fossil fuels, requiring the development of advanced exploration, extraction, production, and transport technologies;
- Developing new and safer means of producing and harnessing nuclear energy, including thorium and fusion technologies;
- Tapping renewable energy sources – water, geothermal, tidal, solar, wind, biomass, hydrogen, methanol – by developing the necessary technologies and infrastructure needed for their mass production, distribution and end use;
- Mitigating the environmental and climatic impacts of fossil fuel use (CO2 and other greenhouse gases), by means of S&T advances and regulation and conservation measures, among others;
- Making energy available for the modernization of developing country economies and societies, and for the whole of their populations' basic needs related to habitat, food security, transport, etc. in a manner that reduces the pressure of poverty on forest and ecosystems and leapfrogs problems associated with patterns of development in advanced economies.In addition to the necessary scientific and technological advances to achieve the above, socio-economic innovation involving changes in outlook, economic reasoning and organization, both at the national and international level, are crucial. In a globalized world, in which energy resources are currently limited, policies to promote widespread economic development and new sources of energy will only be successful if based on shared objectives of the international community. Traditional approaches and relations between states based on power politics and mercantilism that favour those with most power will need to cede to a new world order both in the interests of equity but also human survival.

NORTH-SOUTH GLOBAL CONSENSUS

Bearing in mind the monumental challenges and risks currently facing humankind (and the planet itself), the direction and shape of the future cannot be left to the vagaries of the market or to the policy preferences and decisions to those few with global reach and power.

For a productive and harmonious future in which gross poverty and inequality are no longer present and the earth's resources are nurtured, global deliberations and consensus are required based on the principles of wide democratic participation and cooperation. Among the prime matters on which agreement for action is essential, the following are of particular importance:

- Long-term, strategic goals need to be defined through governmental/intergovernmental deliberations, and national and intergovernmental authorities will need to assume responsibility for developing the normative, policy and legal frameworks and associated disciplines that must be respected by the state and society, including corporate actors as well as individual citizens.

- It will be necessary to organize sustained, targeted efforts and programmes and to harness the human resources and collective thinking that are needed to deal with the emerging challenges, and that also involve frontier scientific knowledge and technologies.
- The relevant knowledge, information and technological advances should be readily accessible and diffused as a global public good.
- In order to pursue internationally agreed objectives, programmes and projects concerning the EED triad, massive, long-term sustained investment will be required, including in including in global public goods, and infrastructure, human resources, education and health in developing countries. The financial resources needed to reach the goals set in relation to the EED triad and their allocation between contributors will need to be agreed on. Forms of global taxation may become essential sources of finance.

The EED global "compulsions" that have to be acted on if there is to be a promising and peaceful future for humankind, if taken seriously, have the potential to act as a catalyst in promoting the above suggested "North-South consensus" and global policy accommodation.

NORTH-SOUTH AND SOUTH-SOUTH COOPERATION

The global approach that is needed is feasible provided the widespread perceptual obstacles are removed and the political obstacles that mostly reside within the North, are overcome. The latter, having built their economic and political advantage largely drawing on resources beyond their own frontiers, usually in the South, can offer as their contribution to the global bargain, the technology, finance, expertise, and political good will needed to implement the international EED agenda. In essence, this means the North "investing" in the future of the international community, and thus its own future. This will, however, imply significant changes in approach.

For example, it means taking steps to ensure that the "greening" of the Planet does not lead to new forms of domination and extraction in the South by TNCs, including major northern oil and seed companies who, in recent decades, have become the principal purveyors of new technologies and solutions in efforts to tap globally business opportunities offered by the "green future".

While the countries of the South, and especially the less advanced among them, are likely to need considerable direct support from the international community, they will, nonetheless, have to mount significant efforts of their own depending on the specificities of their national situations.

Some emerging economies have the will, traditions, political outlook and capacities, including S&T potential, organizational practices and community approaches, which they can apply to EED challenges not only domestically but also elsewhere in the developing world, depending on local conditions and situations.

Indeed, South-South cooperation offers an important opportunity for developing countries to adopt innovative approaches that enable them to overcome existing constraints and even take the lead, for example, "free energy" entitlements of people for meeting their basic needs.

Is change really on the way?

A WATERSHED?

Clearly, the above implies a shift to a different world and civilizational order and new social relations that make the achievement of a positive future for people and the planet more likely. This is a task requiring efforts by various sectors of society and institutions, as for example:

- ENLIGHTENED GLOBAL STATESMANSHIP, including governments, to provide leadership, vision and drive.
- RENEWED INTELLECTUAL ENDEAVOUR, including by ACADEMIC and INTERNATIONAL INSTITUTIONS, building on UN and other efforts in the 1970s with a view to elaborating a new paradigm for the situation in the 21st century;
- COMMUNITIES, GRASSROOTS MOVEMENTS, CIVIL SOCIETY, CONCERNED INDIVIDUALS AND PUBLIC OPINION, using Internet to communicate, are an important force for global change and action.
- EDUCATIONAL INSTITUTIONS that teach, explain the world and help the young to interpret it.
- THE MEDIA that has the capacity to both inform and misinform the broad public.
- THE UNITED NATIONS, which should serve to provide the forum and institution for genuine, democratic multilateralism.
- "DOERS", such as scientists, engineers, entrepreneurs, local communities, people who make things and make things happen.

Has the international community arrived at a watershed, when a shift to public-minded action will be possible? Climate change can and has mobilized public opinion in many parts of the world. The recent global financial and the consequent economic crisis has shaken the foundations of the dominant world order and cast doubt on the theories that guided and legitimized it. The crisis has shown that trillions of public resources can be mobilized for public purposes. Change in the political landscape in a key country has loosened some constraints. Ideas previously ruled out as heresy have become suddenly reputable and acceptable.

Is change really on the way? The compulsions of energy-environment-development challenge could significantly contribute to international community's moving in a more promising, positive direction.

KEY PRINCIPLES FOR A NEW POST-KYOTO INTERNATIONAL CLIMATE CHANGE AGREEMENT

ROBERT N. STAVINS,
HARVARD UNIVERSITY

Climate change is a global commons problem

- Cooperation of countries is essential, whether through UNFCCC, G20, or bilateral negotiations
- Since sovereign nations cannot be compelled to act, treaties must create incentives for participation and compliance

A credible climate change agreement must be equitable

- Industrialized countries should accept responsibility for historic emissions
- Key rapidly growing, developing countries will need to take on increasingly meaningful roles
- In both cases, the scope of attention and action should include all greenhouse gases, not only fossil CO2

A credible agreement must be cost-effective

- Needs to bring about technological change and transfer
- Must be consistent with international trade regime

A credible agreement must be practical and realistic

- Build on existing institutions and practices, where possible
- Negotiations must attend to short-term achievements and long-term goals
- No single approach guarantees a sure path to ultimate success, so best to pursue multiple approaches simultaneously

A system of linked international agreements

- Sector-level agreements to establish global standards for specific industries and categories of greenhouse source
- Agreements focused on research & development
- Agreement focused on adaptation assistance to developing countries
- Agreement regarding last-resort remedies, such as geo-engineering
- Since sovereign nations cannot be compelled to act, treaties must create incentives for participation and compliance

A credible climate change agreement must be equitable

TECHNOLOGICAL CHANGE TAKES TIME TO WORK

GARY ROSS,
PIRA ENERGY GROUP

Through Capital Stock Turnover

Example: Personal Transportation

Assume (U.S.):

- Fleet of 220 million
- New car sales of 17 million
- Retirement of 12 million
- New technology provides 25% greater efficiency
- Penetrates new car sales at rate of 2.5%/year

Impact on average fleet fuel efficiency:

- Year 10: 3.0%
- Year 20: 9.0%

China Energy Outlook

Key (Conservative) Assumptions 2008-2025

- Economic growth averages 6.1%
- Electricity demand averages 5.2%
- Transportation oil growth at 4.4%
- 8.5%/year growth in natural gas
- 9.5%/year growth in nuclear
- 11% growth in renewables
- Still need 3.2%/year of coal growth to balance

Key conclusions

- Efforts to slow or reverse carbon emission growth face very strong structural barriers
- Slowly evolving capital stock limits rate of change in all nations
- Countries with strongest energy growth are most dependent on coal
- Efforts to slow growth in energy intensive industries may simply cause relocation
- As efforts to cut coal increase, coal price advantage will grow

TRIADIC THINKING

JOHAN GALTUNG, PRESIDENT,
TRANSCEND UNIVERSITY

A very felicitous idea to bring together three major concerns in what could become a political, economic and intellectual pact...

The basic point is to integrate the three, looking for synergies; all the time mindful of the old Hindu wisdom that if we pursue only one we may not even get that one. There is holism at work. Sectorial-global approaches – one at the time – are needed, but we have many huge bureaucracies and single-minded disciplines. We also need integrated approaches focused on communities, rural and urban, where people live and feel where the shoes are pinching when only one is pursued, and can put their ingenuity to work.

Carbon quota trading – legitimizing fake markets

...Quota trading is not the approach. It smacks of somebody practicing slavery buying some quotas from those with a slavery deficit. The task is to reduce slavery and carbon emission, not to legitimize fake markets.

Energy equality, free energy

Make energy – underlying all basic needs free – like streets and parks, health and education in decent countries, up to a point, e.g. when the user pays for high-speed motor highways. From tubes, sockets, free panels, like the Internet should be freely available all over. Give each household a 1m3 contraption on four wheels to roll into the sunshine for heating, then tapping for all purposes. This would help people overcoming misery considerably. As would a labour-based economy next to the money-based one. If a euro equals a euro, why should not an hour lecture by a professor equal an hour cleaning by a cleaning man or woman? If we all have equal value so do hours of our lives. Easily done on a community basis; like local currencies to stimulate using local nature-production-consumption economic cycles....

Nature-humans-capital rather than land-labor-capital

Markets can make miracles, but a cure-all they are not, nor are they self-regulating. The three classical production factors land-labor-capital can also read nature-humans-capital. Economists have canonized capital equating economic growth with capital growth. How about Nature growth – meaning increased complexity based on diversity and symbiosis?

How about human growth beyond basic needs for survival-wellness-freedom-identity? The spiritual dimension, creating, transcending, not limited to optimization by those prisoners of prisoner's games, the economists. Thinking new! We need a Capital-ism not going amok.

But we also need a broader economics, with Nature-ism and Human-ism..

A SUSTAINABLE PACT

MORITZ LEUENBERGER, SWISS FEDERAL COUNCILLOR

Role of governments and regulation

Governments must have strategies and regulations to plan the future; the private sector alone cannot make an energy revolution. Today real revolutions are made by the states not by the private sector.

I'm convinced that energy policy and regulation are essential. I mean for instance: mandatory energy performance standards for buildings, equipment and cars; and subsidies for renewable technologies.

- They are essential for investments – both private and public – to go into promising technologies.
- They are essential for energy prices to include externalities, such as environmental and carbon costs.
- They are essential to guide the behavior of energy consumers.

Unfortunately, voluntary action by the private sector alone does not deliver sufficient results. I say this because we, in Switzerland, always give the private sector to prove that it can deliver results. In some cases, like with the automobile lobby, we have waited in vain for many years. That's why we must adopt strict regulation. Fortunately, there are many industries – oil, electricity and aluminum companies -- which call for clear regulation, such as price of carbon….

Sustainability needs a unified approach. Sustainability needs a long-term vision. Sustainability needs ambition and political will. Sustainability also needs persuaded citizens…. We need to sharpen public awareness for a sustainable energy policy. Discussions among politics and economics, as we have had them at this conference, help to sharpen this public awareness.

PIONEERING SPIRIT FOR THE 21ST CENTURY

BERTRAND PICCARD, PRESIDENT OF SOLAR IMPULSE

Today, to meet the challenges of improving the quality of life worldwide we need to continue the pioneering and exploration spirit of the kind we used in 20th century to conquer the Planet and to go to the moon.

This pioneering spirit has to be harnessed in a fight for human rights, against poverty, for sustainable development and for better governance of the Planet.

The age of cheap oil is over. Our civilization during last 100 years has been based on non-renewable resources, which are limited in quantity and with prices that can only go up in the period to come. At the same time, renewable solutions already exist, in potentially unlimited quantities and with prices that can only go down. This is the moment when we need to take action on our energy future and consider how to mobilize in this task the pioneering spirit that has brought us so much success in the past.

Our solar-powered plane is not only a technological and scientific exploit, it is meant also as a symbol of what we need and can achieve. The aim is for a pilot to fly this plane around the world without fuel and on solar power only, including by flying through the night on batteries that were charged during the daytime flight. The incredible interest shown for the project by the public, media and policy and decision-makers shows that the real frontier in 21st century will be to invent a new type of future.

We will need to improve quality of life through a paradigm shift and technological innovation, in every country and at each level. Those who will lead and make this possible will become the heroes of the 21st century, remembered and appreciated by the public world over and by future generations. We continue as prisoners of existing paradigms, dogmas, certainties and habits, which we must overcome, including through political decisions and with the help of a strong state which can oblige people, society and industry to use new solutions, some to be developed and many that we already have but do not use. The role of pioneers is to help break paradigms, to make possible what may appear as impossible or unattainable at a given moment in history, to change what up to that point was a certainty. The choice we have today is whether we want to be followers on a road that goes nowhere, or to be leaders and pioneers on a road going to the future.

ENERGY AND GEOPOLITICAL STABILITY

GERHARD SCHRÖDER, FORMER CHANCELLOR
OF THE FEDERAL REPUBLIC OF GERMANY,
CHAIRMAN OF THE ENERGY PACT CONFERENCE

I would like to take this opportunity to emphasize how important it is for the global economy to treat energy supplies – and energy transmission – as strategic political issues. Reliable energy supplies are the cornerstone of our economic success and continued growth. The key question will be how to ensure international energy security and energy supply – in a fair, unrestricted and affordable manner. This is a challenge that…affects the world economy as a whole.

Changes to our climate represent a huge threat, since the social and ecological impact they make, have the potential to disrupt geopolitical stability. Without countermeasures, global climate conditions will change so dramatically that they may get totally out of control…access to the most vital resource – water – will become increasingly difficult for billions of people. Already today, 1.3 billion people do not have access to clean drinking water. We must not allow water to become a commodity for which people will have to fight with military means…. we need to pursue a sustainable energy policy that will make careful use of available resources and make us less dependent on fossil fuels. This will only be possible if we rely on greater energy efficiency and the use of renewable energy sources worldwide…

We should continue to diversify the supply of fossil fuels…this means that industrialized nations should make use of as many energy sources, as many transportation routes and as many suppliers as possible…

We need a multilateral approach to energy policy. To this end, it will be necessary to further institutionalize international energy relations…we all have to work together towards global energy security. Even if competition increases in the future, we must not allow energy to become the currency of power in international relations…. A system of cooperative energy security must promote dialogue among energy producers, consumers, transit states and the private sector…

The pressing international issues – climate change, energy security, the solution of regional conflicts and the financial crisis – can be resolved only at multilateral level. The Cold War era is over for good – and both sides would be well advised not to attempt to keep it alive, either in rhetoric or policy. Instead we need an international policy that puts the focus on cooperation and dialogue, after years of unilateral action. This also applies to policy between the European Union, the US and Russia…

Whether we will be able to achieve a secure and peaceful energy supply around the globe will depend on how we manage the following four challenges: a sustainable energy policy, fair access to energy, a multilateral energy policy, and peace in the Middle East.

COOPERATION AND DIALOGUE

THE ULTIMATE HUMAN AGENDA

ALI I. AL-NAIMI, MINISTER OF PETROLEUM & MINERAL RESOURCES, KINGDOM OF SAUDI ARABIA

Much is at stake in the energy debate, with issues ranging from security of supply and future demand to environmental sustainability and energy for emerging economies looming large – all against a backdrop complicated by today's tough economic conditions, price volatility, and evolving energy policies...

Cycles of progress and growth are particularly vital for emerging nations, which need abundant, inexpensive energy supplies to develop their economies and to pursue the human right of a better quality of life. For even less developed nations barely at subsistence levels, access to affordable, modern forms of energy is key to survival; it is a means of food, clean water and medicine – and the hope of lifting families and individuals from crushing poverty….

The next factor driving urgency of the energy debate is of course environmental sustainability, and the need to make all energy sources safer, cleaner and greener. Again, this imperative gathers gravity from the perspective of emerging economies, where energies can carry financial, political and social costs arguably greater than those same costs paid by developed countries for different reasons.

Third is a more quantitative concern: that of meeting burgeoning future energy demand.

Complicating our task is the fourth factor, the state of world's economy and finances, which today are in a condition that inhibits investment and expansion for traditional and alternative energies by removing commercial incentives and funding sources.

Dwindling fossil fuel resources?

The kingdom of Saudi Arabia is the world's leading petroleum country in terms of reserves, production and exports…At our current, average crude-oil production rate, proven reserves alone are conservatively estimated to continue for approximately 80 years. ..our ability over many years to replace our annual production capacity with new reserves, which could extend the life of these immense resources quite considerably..

Now let us look at the world's total liquid energy resources in place, encompassing not only conventional oil estimated from six to eight trillion barrels, but also non-conventional liquids, ranging from condensates and natural gas liquids to tar sands, oil shales and extra-heavy oil, and estimatedat seven or eight trillion barrels or higher.

These figures tell us that while the days of easy oil may be over, the days of oil as a primary fuel source for the people of the world are far from over….Many authoritative energy-tracking organizations predict that fossil fuels will continue to meet four-fifths of the world's energy requirements for at least the next few decades…four decades hence, the transport sector will still be reliant on petroleum…

Fossil fuels, especially conventional oil, are proven, abundant, reliable, affordable and safe energy; they are supported by extensive production, transportation and distribution networks; and they have the advantage of an aggressive technology campaign to improve their sustainability as an environmentally friendly source…

Petroleum's rightful place in the energy mix

These vast resources clearly point to our need to prioritize research, development and technology applications for finding, extracting and replacing our energy reserves. They also compel us to think about energy future inclusive of all sources, not exclusive, and where petroleum, like other energy resources, has its rightful place in the mix…

There is no excuse to pin our hopes only on alternatives, which today are just supplemental energies, when it comes to optimizing our energy future. When the supplies are there, and when we are continually making their harvesting and production greener and cleaner, the answer is an inclusive energy mix. Considering the role fossil fuels play in keeping economies functioning and improving quality of life for billions, let us continue to enhance their sustainability, use all energies more efficiently and conservatively, and create an energy context that lets all viable sources become efficient, cost effective, safe, and clean enough to contribute…Our immediate focus, then, must be to make fossil fuels cleaner and more efficient.

Risks of advocating premature shift from fossil fuels

Regardless of intentions, the consequences of a premature shift from fossil fuels to slowly evolving alternatives can be deeply counter-productive to global energy security, and indeed to the natural environment…One negative is progressively lower levels of investment in the fossil fuels…as demand uncertainty creates a strong sense of investment risk for producers….Diminished investment in fossil fuels will impact our ability to provide the energy that will be needed when the economy turns around; to meet growing future demand; to develop the products and processes and conduct the studies that continually lighten our environmental footprint; and to enhance energy conservation practices. A second risk …is increased market speculation. Over the last several years, we saw how talk of peak oil created a speculative environment, pushing oil prices to unreasonable levels. Today's low energy prices are just as unsustainable as soaring prices. This kind of price volatility not only obscures market signals needed to ensure levels of investment required to meet future demand, but can also make global economic recovery a much more difficult, more distant prospect.

Alternative energy providers

..Many international oil companies are beginning to position themselves less specifically as oil companies, and more as energy providers, with a new concentration on areas such as wind power and biofuels. As for Saudi Arabia, we are investing in another natural, renewable resource plentiful in our part of the world – sunlight…If it should come as a surprise that the world's largest oil exporter also hopes to be the world's biggest solar provider someday, this diversification strategy was planned decades ago…Saudi Arabia thus aims to be the world's largest exporter of clean electric energy produced from our abundant sunlight.

King Abdullah University of Science and Technology, or KAUST, the Kingdom's new research university set to open this fall, was conceived as a global partnership to develop solutions to world matters like energy and environment, while educating scientists of tomorrow…It includes an institute committed to resources, energy and the environment. This institute will feature a dedicated centre for solar energy studies.

Response to global warming

Our response to global warming is rooted in knowledge. We are using technology as a flywheel to speed the development of our carbon-management products and techniques...

Transportation is the most energy-intensive petroleum application, and the eventual economic recovery and phenomena such as the coming population boom will mean more people on the move. In light of this increasing demand and our commitment to continually enhancing sustainability, Saudi Aramco is making strides in desulfurizing whole crude oil products. The company is also developing cleaner-burning fuels, including new formulations consistent with next-generation, super-efficient engine technologies.

FUTURE

An inclusive, transparent energy strategy that considers the viability of all sources; acknowledges the ongoing role of fossil fuels; enables innovation to promote the sustainability of all contributions; and encourages their efficient and conservative use is our best hope for a secure, shared energy future.

ENERGY FUTURE & ENERGY CHOICES

ASHOK KHOSLA, PRESIDENT OF THE INTERNATIONAL UNION OF CONSERVATION OF NATURE (IUCN) AND PRESIDENT OF THE CLUB OF ROME

We are here to talk about energy future. Energy is about energy security. It is about energy justice, which is energy security for all, energy justice for everyone now and in the future... Energy is only one part, a small part of global ecosystem, global economy. This conference is about a Pact, namely what we all agree upon, in terms of energy for what, energy for whom, and energy from where. These are questions we did not have to ask in the past, and that is why we ran into problems...

In the Third World there are 3-4 billion people living very meager lives of poverty and inequity, vulnerable and risky lives in a degraded environment. Then there is the First World, where a couple of billion people are essentially mining the landscape and have started to destroy the productive health of our environment. The world income distribution is shaped like a champagne glass with the top 20% of population accounting for 80% of global wealth…such income distribution is not sustainable ecologically, physically, socially, morally…

Vis-à-vis this challenge, there are three possible scenarios, business as usual, fine tuning, and systemic change. If you are from a developing country, you have three basic choices, a copycat, a piggy back and a leap frog one. The copy cat approach is business as usual; piggy back is fine tuning of the existing situation by going after potential energy efficiencies, fiscal incentives, more efficient auto engines, more economical light bulbs, etc.; the leap frog means fundamental changes in lifestyles, different approaches to economics and technology…

The future lies also in engineering based on biology, in nature-based technologies. Nature can teach us a lot and offer us a lot. Animals, plants, fungi, algae, bacteria can also do a lot for us and do it for free…

We are at a point when we have to make inconvenient decisions, and work our way into new forms of energy use…We have to recognize that many things that were sacrosanct before are no longer tenable… We have to look at the issue of population.. We have to use different technologies to get around, to produce power, electricity, etc..

We have to think through a better life without having to use so much material energy.

EFFICIENT USE OF ENERGY AND LIMITING DAMAGE TO ENVIRONMENT

GHOLAMHOSSEIN NOZARI,
MINISTER OF PETROLEUM,
THE ISLAMIC REPUBLIC OF IRAN

We are very much in favour of any measure that can help in the efficient use of energy and that can limit damage to the environment. I think it is also important to note that damage to the environment is not solely because of the use of fossil fuels, but is due to their misuse…In our opinion if the right amount of resources are spent on research and development for making the use of fossil fuels more efficient or capturing the harmful emissions from the environment affordable to all, the road for sustainable development will be paved.

1.6 billion people in the South without access to modern energy

Today, still about 1.6 billion people in the developing countries have no access to any form of modern energy. It means they are forced to burn wood or animal waste to have access to energy…Providing affordable energy to this large number of our fellow human beings is a noble task, and if this can be done through the use of renewable and more modern forms of energy, it is fine. However, as experience shows if this proves to be unaffordable or more damaging to the environment as a result of deforestation, then the use of clean fossil fuels through simple and efficient cooking means can save the environment and human life… We welcome all efforts for providing clean and affordable energy to all the people and not only the rich nations. In this process the security of food supply should not be compromised. Recent report concerning the destruction of vast areas of rain forest to plant trees in order to get biofuels is an alarming development. Trying to correct one wrong should not lead to more wrongs.

Greed, the main reason for lack of concern for environment

All concerned authorities should take whatever measures possible to fight the greed, which has been the main reason for lack of concern for the protection of the environment for many years. Today's financial crisis around the world, which has made many pollutant industries to seek help from their respective governments, has created a good opportunity to promote cleaner industries. The governments of rich nations with their financial capabilities are in a good position to make their financial assistance to these industries subject to more efficient and cleaner practice. I am not suggesting that governments of poorer countries are free of responsibilities; they should also play their part, though the lead has to come from richer nations, according to the principle of common but differentiated responsibilities.

Diversifying electric energy sources

We hope, through changing energy consumption policies and their optimization, as well as increased natural gas production capacity, Iran can play a major role in meeting the growing need of the world, especially that of Europe for natural gas. This is why, we in the Ministry of Petroleum were even happier than our counterparts in the Iranian Atomic Agency, when this month, the news of the test run of Iran's first nuclear power plant was announced. Because its production of electricity in the near future will decrease the pressure we have been facing to meet the growing need of electricity of our nation of 70 million people especially following many years of low rain falls which has increased the power plants' demands for natural gas and gas oil substantially.

THE IMPORTANCE OF LONG-TERM VISION AND SUSTAINED ACTION

HANS JORGEN KOCH, DANISH ENERGY AUTHORITY

Denmark's wake-up call 35 years ago

- 1973-74 oil crisis
- Denmark then 99% dependent on imported energy (oil and coal)
- Supply situation exacerbated by inefficient energy use
- Sharply rising oil prices caused severe economic crisis and high unemployment

Since then, Denmark has made significant strides

- In de-linking growth and energy consumption (between 1990 and 2007, growth recorded was 45% while energy consumption increased by 7%)
- Increasing renewable energy share of Gross energy consumption (from around 3% in 1980 to around 17% in 2006)
- Using biomass (wood or straw, biogas, municipality solid waste) for district heating, with 10% of all electricity consumed produced in biomass plants
- Green energy sectors help employment and exports (in 2007 - wind power employed 28,000 persons, while export of wind turbines earned 7 billion US$; district heating and combined heat and power (CHP) employed 25,000 persons, while export of technology and services earned 2-3 billion US$)

Long term vision

- In the long term become entirely independent of fossil fuels
- Reduce the use of fossil fuels by at least 15% in 2025
- Increase grow energy consumption from renewable energy from 15.6% in 2006 to 20% in 2011, and to minimum 30% by 2025

Elements for a future agreement on Climate Change

- A long-term goal for the global emissions
- Enhanced national and international actions to reduce emissions:
- Ambitious mitigation targets for developed countries
- National appropriate mitigation actions by developing countries
- Support for poorer countries' reduction efforts
- Contributions regarding deforestation in developing countries and particular sectors (aviation, ships, cement, aluminum, etc.)
- Adaptation to climate change
- Technology – transfer and development
- Financing and investment5

THE GLOBAL TRIPLE CHALLENGE: CLIMATE CHANGE, SECURITY OF SUPPLY AND THE ECONOMIC CRISIS

EUROPEAN UNION 3X20 BY 2020

PIERRE-FRANCK CHEVET, DIRECTOR GENERAL FOR ENERGY AND CLIMATE, FRANCE

- Unilateral commitment to reduce GHG emissions by 20% (and up to 30% in case of conclusion of an international agreement)
- Improving energy efficiency by 20%
- Binding target of 20% of renewables in the total EU energy consumption

France is well positioned...

- Energy independence rate of 50% (though near zero fossil fuels)
- CO2 emissions relatively low (30% to 40% less than other big European countries)

Mainly thanks to:

- Nuclear energy (85% of power generation)
- Renewable energies (10% of energy consumption)
- Small and less consuming cars

..will enhance its efforts

- 23% renewables by 2020
- 2 new nuclear reactors
- reducing energy consumption for existing buildings of 38% by 2020
- priority given to public transportation
- 21% emissions reduction for industry by 2020

LOREN COX,
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

In summing up the discussions that took place in the two panels held on the previous day, one on Energy and Finance, and one on Environment and Development, the speaker highlighted several points.

- Serious and widespread activities are on the way for renewable energy technologies, solar and wind in particular. The challenge is how to integrate these into the existing grid, and how to extend them to the developing world. Prospects for nuclear energy are growing, but costs are high and construction of power stations takes long time. Waste disposal and nuclear proliferation remain a problem. Fossil fuels are likely to be durable, especially coal which is abundant and widespread around the world. Ways and technologies must be found for its clean exploitation.
- It is important to pay much more attention to greenhouse gases other than CO2, many of which are man-made and have a much greater impact than CO2.
- While oil is one of the energy sources calling for attention, the fact remains that exporting countries are mostly poor and that possible actions could have serious effects on their economies.
- Developing countries are increasingly connected with the rest of the world and are more aware and aspire to amenities of life that exist in the North.
- There are many serious development challenges and needs in the South which need attention, even if the issue of climate change did not exist.

ENERGIES FOR THE FUTURE

CARLO RUBBIA,
NOBEL PRIZE IN PHYSICS, CERN

The future of mankind is crucially dependent on the continued availability of cheap and abundant energy.

- It is most urgent that the use of fossils is reconciled with global warming. Burning of NG without CO2 and CO2 recovery for methanol conversion should be developed. Alternative energies must also be vigorously pursued:
- Solar Energy: particularly promising is concentrated solar radiation in the wide, desertic regions of the "sun belt",for electricity production and water splitting into hydrogen.
- A new Nuclear Energy without U-235 and without nuclear proliferation : Thorium fission and D-T fusion are likely candidates, capable of supplying energy for millennia to come.
- Both methods are likely to become successful in the long run: however a vast, urgent and innovative R&D is necessary.
- Although innovative energies may eventually be more essential for developing countries, our technically developed society should realistically foster such a change.

WE NEED VISION AND LEADERSHIP

SERGEI A. ORDZHONIKIDZE
UN UNDER-SECRETARY-GENERAL
DIRECTOR-GENERAL OF THE UN OFFICE AT GENEVA

Ensuring a secure and steady energy supply that enables sustainable development, and supports our efforts to confront climate change is indeed a central challenge. As the United Nations Secretary-General, Mr. Ban Ki-moon, has often stressed, climate change remains the only truly existential threat that we face as the human family. Recent findings confirm that climate change is, in fact, progressing at a much faster rate than previously anticipated. We can only address it effectively if we integrate energy and development policies. The global recession has only made this need all the more urgent.

Energy resources are fundamental to the efforts to realize the United Nations Millennium Development Goals – our blueprint for reducing global poverty by 2015. Let there be no doubt: there is no trade-off between fighting climate change and advancing development. On the contrary, we can only effectively move forward development by promoting our climate goals – and our response to the climate crisis must further economic and social goals. Energy is the element that combines these objectives. We need vision and leadership to ensure that we do not deplete our resource base.

NEW GREEN DEAL. The UN Secretary-General has called for a "New Green Deal" to create new employment and foster sustainable markets while protecting our environment and natural resources. Efforts to increase the use of renewable and low-carbon energy sources, investment in energy efficient jobs and promotion of climate friendly practices must be part of a concerted response to climate change.

SUSTAINABILITY AND AFFORDABILITY

DR. SUPACHAI PANITCHPAKDI, SECRETARY-GENERAL OF UNCTAD

"On a global scale, and especially when seen from the perspective of developing countries, we are facing two fundamental energy challenges.

The first is access to sufficient energy sources and at affordable prices, including in parts of the developing world where access to modern energy services is more of a dream than a reality. Access to these services is fundamental to fulfilling basic social needs, driving economic growth and fuelling human development." Then it continues with Second challenge.

The second challenge is sustainability: Given the non-renewable nature of fossil fuels and the need to mitigate climate change, it is imperative to make greater use of alternative energy sources, increase energy efficiency and "decarbonize" energy. Today, worldwide, 64 per cent of electricity supplies come from fossil fuel, 16 per cent from nuclear fission and 19 per cent from hydro, with very little from other renewable sources. The dominance of fossil fuel as the main source of energy is disconcerting and goes against the sustainability objective. Moreover, since the world's population is expected to grow at least for several decades and the energy demand is likely to increase even faster, it is highly likely that fossil fuel will continue to be an important source of energy supply for the foreseeable future. However, in contrast to the situation even a few decades ago, we now have the technology needed to develop alternative and renewable energy sources, including wind and solar. We must intensify the development efforts in this area, including through technology transfer from developed to developing countries and by encouraging knowledge sharing in the context of South-South cooperation.

On a global scale, and especially when seen from the perspective of developing countries, we are facing two fundamental energy challenges. The first is access to sufficient energy sources and at affordable prices, including in parts of the developing world where access to modern energy services is more of a dream than a reality. Access to these services is fundamental to fulfilling basic social needs, driving economic growth and fuelling human development.

THE ECONOMIC CRISIS AND THE FUTURE

DAVID HILLER
PRESIDENT, GOVERNMENT OF THE REPUBLIC AND STATE OF GENEVA

The economic crisis cannot cancel the fact that last summer, the oil barrel almost reached the 150 dollars mark. Neither can it cancel the dramatic consequences of the oil and food prices surge, especially on the most fragile countries of the world. The crisis will come to an end and the return of growth will bring back to the fore the question of raw material prices, together with the issue of the foreseeable depletion of fossil energies. The states and all stakeholders of the global economy must urgently face up to their responsibilities. They must prepare together the post-economic crisis era, in order to allow for the sustainable development of our societies. This means notably a drastic reduction of our dependency on non-renewable energy sources.

The economy is obviously not the only dimension to be considered. We all understand that if we do not act quickly and in a meaningful way, climate disorders will reach a point of no return… The constraints that sustainable development imposes, provides us with a way out of the crisis. This way entails building the framework for a sustainable and lasting growth for our planet. The resolute action of states, together with an increased level of responsibilities that all economy stakeholders have to assume, will lead us in the right direction.

ENERGYPACT CONFERENCE SPEAKERS

GERHARD SCHRÖDER,
Chairman, Energy Pact Conference, Former Chancellor of Germany

DAVID HILER,
President, Government of the Republic and State of Geneva

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