

CLIMATE CHANGE, RENEWABLE ENERGY, AND ENERGY EFFICIENCY

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The world today is entering a new energy era requiring global action and cooperation. Concern is growing over energy security, climate change, and access by the poor to modern energy services.

Energy security is becoming a central priority for all nations concerned with promoting healthy economic growth and maintaining internal as well as external stability. But energy security is more than just the assurance of future oil sources. It includes diversification of energy sources, increasing domestic supply to meet future demand growth, and strengthening efforts to reduce such demand.

On the other hand, climate change is a serious and long-term challenge—one that is truly global in its causes, potential effects, and possible solutions. The impacts of climate change are already occurring and future damages are a certainty. Globally, climate change is emerging as the most difficult energy-environment linkage. The production and use of energy contribute more than any other human activity to the buildup of greenhouse gases in the atmosphere and future energy trends will determine how quickly those levels continue to rise and by how much.

Over the last six months, a new consensus is developing concerning the need for early action to control greenhouse gas emissions. The IPCC in one report showed that man-made climate change is unequivocal and demands urgent action. The atmospheric concentration of CO₂ is already higher than it has been for at least 650,000 years and the average temperature of the earth is heading for levels not experienced for millions of years.

In a second report, the IPCC addressed the serious impacts of climate change and called for actions to help poor countries adapt to higher temperatures, rising sea levels and an increase in droughts and floods. Such efforts could help reduce the number of refugees whose migration is expected to become a source of serious conflicts.

Increasingly, energy security and climate security are becoming closely interconnected with global security. Two days ago, the UN Security Council held an open debate exploring the relationship between, energy, climate and security. No other international forum has yet addressed these issues at this level. It recognizes that the cumulative

impacts of climate change could exacerbate drivers of conflict such as water shortages and reduced food production, and particularly increase the risk to those countries already susceptible to conflict.

Similarly, a report commissioned by the US Center for Naval Analyses which is a government-funded think tank, was released on Monday by 11 retired senior military generals. It concluded that global warming “presents significant national security challenges to the United States” and called on the U.S. “to commit to a stronger national and international role to help stabilize climate change at levels that will avoid significant disruption to global security and stability.” Let us hope that the findings of this report as well as others that preceded it will convince the US Administration to join the community of nations in negotiating a new international agreement on climate change beyond Kyoto.

In addition, the now famous Stern report demonstrated that the cost of taking action now are small, on the order of 1% of GDP, while the benefits are large compared with the much heavier penalties of delaying action. An IEA report presented scenarios and strategies to 2050 and concluded that by employing worldwide technologies that already exist, energy-related CO₂ emissions can be returned to their current levels by 2050. And the World Bank analyzed the role of public and private finance, especially from the carbon market, in the transfer of clean energy technologies to developing countries.

It seems we now have a convergence of science, economics, technology and finance to guide international action to address climate change, but the window of opportunity for staying within an acceptable range of atmospheric carbon dioxide and other greenhouse gases is closing, and the costs of mitigation and adaptation will rise substantially with time. A sustainable energy future is possible with known technologies and the costs are not out of reach, but increased political will and greater collaboration between developed and developing countries are essential.

Among those known technologies is renewable energy, which is a win-win proposition for developed and developing countries alike: (1) it provides opportunities for poverty eradication and for satisfying the energy needs in rural and remote region (as we know, 4 out of 5 people without access live in dispersed communities not served by a grid); (2) it helps generate employment and local economic opportunities; (3) it helps curb global warming and contribute to the protection of human health caused by air pollution; and (4) it enhances energy security through reliance on domestic energy sources such as biomass, hydro, wind, solar, and geothermal.

In 1931, Thomas Edison met with Henry Ford, who had invented the gasoline powered car, and told him: “I’d put my money on the sun and solar energy. What a source of power!” He continued to say: “I hope we don’t have to wait until oil runs out before we tackle that.” Seventy-five years later, the global market for renewable energy technologies exceeded \$40 billion in 2006 and the Financial Times estimates that investments will quadruple to more than \$165 billion in 2015. It has taken longer than Edison expected, but the transition from old energy to new energy is underway. Even

some old and big energy companies like BP and Shell have realized that planning for change is more profitable than fighting it. And Abu Dhabi, one of the world's major oil producers, has decided to look beyond oil to a future that includes renewable sources.

At the same time, the potential contribution of renewable energy in EU neighboring countries is tremendous. For example:

- Hydro power in eastern neighboring countries. Also in Morocco, Algeria, Syria and Lebanon.
- Biomass in eastern European and Caucasus countries.
- Wind in coastal regions of the Atlantic, Mediterranean and Red Seas.
- Geothermal in Maghreb and Caucasus.
- Solar in the MENA region, offering wider range of technology options including PV and solar concentrating power.

Clearly, momentum is building. But business, investors, activists, and scientists alone cannot change the way we produce and use energy. These groups can anticipate change; they can facilitate it; they will profit from it, but they cannot drive it. Public policies that create markets, remove barriers, level the playing field, and establish clear objectives and targets for renewable energy and energy efficiency help shape the future. Energy policies affect the price, availability, and advancement of new technology, and therefore affect how quickly we reach the point where consumers can choose electricity generated by wind and the sun or more efficient lighting, appliances and cars. In my view, addressing the linked concerns of energy security and climate security should be national priorities everywhere.

Japan and Europe, for example, have led the way in setting far sighted policies for renewable energy. As a result, Japan is the world leader, producing 43% of the world's solar cells, while Europe produces 90% of the world's wind turbines.

Last month, the EU took a significant step toward addressing climate change and energy security by adopting 20% targets by 2020 for carbon emissions reduction, for increasing the share of renewable energy, and for improving energy efficiency. I would like to take this opportunity to congratulate the Federal Government of Germany on its leadership in helping set such exemplary goals and urge that similar leadership be exercised at the G-8 Summit in June to agree on a goal of significant reductions in greenhouse gases and expeditious start of negotiations toward a new climate agreement.

In the meantime, and in order to mobilize international political leadership, the Club of Madrid and the UN Foundation have established the Global Leadership for Climate Action which I have the honor of facilitating its work. It consists of twenty-five members including six former Presidents, seven former Prime Ministers, and twelve prominent international leaders from government, intergovernmental organizations, business, and NGOs. The global leadership will develop and propose a framework for a post-Kyoto agreement to be presented to the next Gleneagles Dialogue meeting here in Germany in September, 2007, as well as such follow-on meetings as the Conference of the Parties to

the UNFCCC in Bali in December 2007, and the G-8 Summit and the Gleneagles Dialogue final meeting in Japan in 2008.

Besides the need for substantial increase in the use of renewable energy, the technical and economic potential of improving energy efficiency, according to the IEA, are enormous. Energy efficiency, long recognized as the cheapest, cleanest source of energy has not been pursued by countries as aggressively as new supply in spite of many studies showing the large opportunity for gains in that area. For example, a study by McKinsey late last year reported that the demand for energy from all sources will grow by an average of 2.2% a year between now and 2020, up from 1.6% since 1994. Deploying available, commercially viable technologies could slow that growth to just 0.6% a year and by 2020 would cut about 25% from global energy use.

In addition, energy efficiency improvements through demand-side management and technological innovations can cost-effectively cushion large-scale impacts of energy supply disruptions, especially in the electricity sector. Improving efficiency in the transportation sector as well as the design and efficiency of commercial and residential buildings and appliances can help moderate global climate change while contributing to a more sustainable energy future.

In closing, let me say that our concerns about energy security and climate change are pushing us toward a clean, renewable, and efficient energy future. The profits to be made in building and selling these technologies are pulling us in the same direction. With one strategic leap, we can effectively address two of the biggest threats to our children's and grandchildren's survival while creating the high-tech industries that will employ them in the future. But we need to adopt a long-term view, enact the needed policies, mobilize significant investments, and enhance cooperation at the national and global levels.