

## **Energy and sustainable development, a European Electricity Industry Perspective**

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We are facing now global challenges : economy globalization, quickly emerging countries, energy resources management, environmental issues moving from local to global concerns.

Increasing knowledge of environmental problematic and persistent economic inequities underscore these concerns. Growth of population, limited capital resources, rapid development and intense energy consumption are rising challenges in both developed and developing countries.

Sustainability is the theoretical concept driving this new way of thinking. We must prevent it from becoming a new ideology. Future cities bring new problems to be solved in a voluntary manner. Population mobility shall be organized in a sustainable manner. Water share, food share and health problems together with environmental issues must be addressed.

Energy is a particularly strategic issue. Expansion of population and industrialization of countries lead world energy use to increase. The challenges of energy related problems, in particular climate change, require a consistent framework to evaluate technologies.

Electric technologies play an important role in technology transfer. Electrification can help to develop countries, facilitate economic growth, reduce pollutants and greenhouse gases. The energy savings from electric technologies use provide environmental benefits. Electric technologies use can reduce total emissions of a wide range of pollutants (SO<sub>2</sub>, Nox, particulates, etc.). Over the past 30 years, as electricity per unit of GDP has increased, the total primary energy supply per unit of GDP has decreased.

Coal is, for instance, a major source of energy in India and China (70% of the coal is used in low efficiency technologies) : increased use of electric technologies, even when electricity is made out of coal, is a key factor for a sustainable development of such countries. The number of advanced end use electric technologies is huge (flash bake oven, fax machines, heat pumps, electric vehicles, high speed trains, induction furnaces, infrared paint drying, etc....). Conventional electric generation technologies can still improve their efficiency (coal : supercritical fire units ; gas : fuel cells ; oil : ori-mulsion ; nuclear : fuel recycling technologies ; etc.). Renewable energy generation technologies, except hydropower, should represent only 4% of energy supply by 2010 but must anyway be encouraged for long term purposes.

Billions of people around the world do not have access to energy or electricity. Therefore billions of people are still suffering infant mortality, difficult childbirth, painful muscular work verging sometimes on slavery, bad health, bad food, lack of education, of communications, of culture, etc. We all know that those billions of people cannot accept such

a situation. We too, the developed countries electricity industry, cannot accept such a situation, because it leads inexorably to an intolerable and non sustainable world .