Sustainable Development in action
United Nations Commission on Sustainable Development
BACKGROUNDER | APRIL 2007

Energy for Sustainable Development

The Challenge

Growing fears about energy insecurity, heightened by concerns over the rising price of oil and gas have made headlines across the globe. Will countries continue to have access to a steady supply of affordable energy?

At the same time, concern about climate change is increasing. According to the most recent assessments of the Intergovernmental Panel on Climate Change, the planet's warming is unequivocal, its impact is already noticeable, and it is beyond doubt that human activities have been contributing considerably to it.

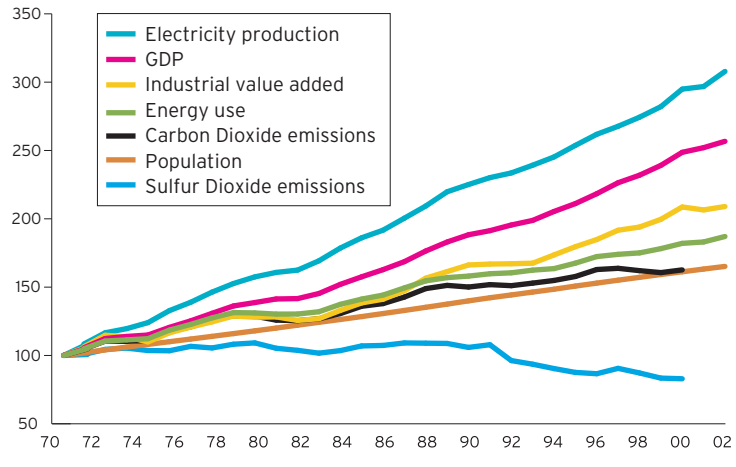
There are 1.6 billion people in the world who still don't have access to electricity and there are 2.4 billion people, more than a third of the world's people, who still cook and heat with traditional fuel sources such as wood or dung and who suffer from indoor and outdoor air pollution. The indoor air pollution caused by the use of biomass in inefficient cook stoves is responsible for an estimated 1.5 million deaths per year – mostly of young

children and mothers. More, and cleaner, energy sources are needed to support the kind of economic development that is needed to improve the lives of hundreds of millions of people who are presently living in extreme poverty.

Often reported or discussed as distinct or only casually related phenomena, these issues are inextricably linked to one another in a manner that goes to the very heart of the most commonly used definition of sustainable development: meeting the needs of the present without compromising the ability of future generations to meet their own needs.

But confronting all three of these challenges requires a common approach, a global approach, and it requires that countries integrate their energy policies into comprehensive planning for sustainable development. On this basis, the Commission on Sustainable Development will meet in New York from 30 April to 11 May to decide on concrete policy options and practical measures that will allow countries to meet their particular needs in a global framework.

Global Trends: Growth in Economy, Energy & Emissions



Note: Index: 1971=100

Source: UNDESA-DSD, based on data from World Bank, World Development Indicators 2005, and Stern, D., 2005.

"Sustainable development means that we have to tackle the problems of poverty, consumption and the environment as a package," says JoAnne DiSano, Director of the UN Division for Sustainable Development. Speaking in advance of the meeting, she adds, "Through practical policy recommendations, the Commission on Sustainable Development can help countries adopt the best approaches."

Global approaches have worked. Due to a concerted effort, countries have largely eliminated ozone depleting chemicals and leaded gasoline. New technologies, as well as a shift from sulphur-containing fuels, have contributed to large reductions in sulfur dioxide emissions.

More concern over climate

The magnitude of emissions of greenhouse gases released into the earth's atmosphere during the last century far exceed the levels going back thousands of years. The build-up of these gases, which cause the atmosphere to retain more heat, is primarily the result of emissions from burning fossil fuels such as oil, coal and natural gas.

Largely due to human activity, the earth's temperature has increased by 0.74ºC during the past 100 years according to the Intergovernmental Panel on Climate Change, and northern hemisphere data indicates that the temperature increase of the last century was the biggest jump in the last 1,000 years. Eleven of the last twelve years (1995-2006) rank among the 12 warmest years since temperature measurements began more than 150 eyars ago. The IPCC projects that surface temperature of the earth could rise by 1.1 to 6.4 C by the end of the 21st century

Most of the build-up in greenhouse gases has been the result of more than a century of activity in the world's most industrialized nations, which still consume the most energy and cause the most emissions. In developing countries today, per capita energy consumption ranges from one-third to one-fifteenth what it is in developed countries. And even in developed countries, Europe and Japan are considerably less energy intensive – that is they require less energy to produce a unit of economic output - for their income levels than is the USA.

Energy Needs Growing

As more people in more countries pursue a better standard of living, more energy is used and, consequently, the amount of emissions increases. The IEA forecasts that global energy demand will grow by 60 per cent by 2030, and that period energy supply infrastructure world-wide will require a total investment of $20 trillion, with about half of that in developing countries. During this same time, emissions of carbon dioxide, the main greenhouse gas, are likely to grow by 62 per cent.

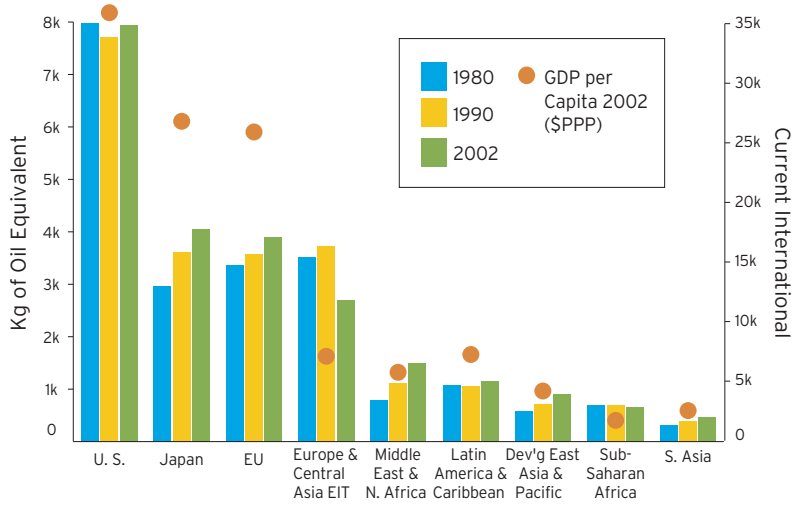
Nevertheless, energy consumption has increased more slowly than economic growth due to improved energy efficiency and as economies have moved toward less-energy intensive industries and services. China has more than doubled its energy efficiency between 1980 and 2002 and carbon dioxide emissions are increasing at a lower rate than overall energy use, due in part to energy efficiency, increased reliance on natural gas, and to a lesser extent, to nuclear and renewable energy.

But greenhouse gas emissions due to strong economic growth have more than offset any emissions reductions in North America, and in Asia, booming economies largely fueled by coal combustion have resulted in a tripling of emissions compared with 1980.

The world presently uses the equivalent of 230 million barrels of oil a day, and if present trends continue, oil use is expected to increase by 50 per cent over the next 25 years.

Enhanced cooperation can help reduce price volatility and keep oil and gas markets working efficiently, reduce uncertainty surrounding investment decisions and thus stimulate investments, not only in oil and gas, but also in and advanced and cleaner energy technologies.

Energy Use per Capita & GDP per Capita



Note: Europe & Central Asia EIT (Economies in Transition) excludes EU accession countries.
Source: World Bank, World Development Indicators 2005.

Feeling the Energy Pinch

Energy issues are again on top of the international agenda this year, and energy efficiency and climate change are among the main issues before the G8 Summit that will be held in June in Heiligendamm in Germany.

Energy was a major theme for United States President George W. Bush, who called for "energy independence" in his major address to Congress in 2006. Indian Prime Minister Manmohan Singh, explaining in an interview with the Washington Post why India was looking at new energy partnerships said, "We are terribly short of our energy supply and we desperately need new sources of energy." And China, which has seen its imports of oil increase dramatically, has adopted a 15-year plan to improve conservation, the use of renewable energy sources, and cleaner coal.

High oil prices may help promote energy conservation and reductions in greenhouse gas emissions and could provide the economic impetus to turn to alternative energy sources such as renewable energy. But high oil prices take a toll on the pocketbooks of consumers in developed countries and can be devastating to non-oil producing developing countries, which often have to dip into reserves to pay for energy imports. Energy price volatility poses major problems for sustainable development in both energy exporting and importing countries.

Oil industry officials maintain that there is still plenty of oil in the ground to meet rising demand for many years to come. A minority of commentators and analysts have aroused controversy by arguing that oil extractors will in the near future "peak" and decline thereafter. Others maintain that rises in the price of oil will spur investment, technological innovation, and the tapping of harder to get oil resources, such as tar sands.

"There is no shortage of oil and gas in the ground," says Claude Mandil, Executive Director of the International Energy Agency, "but quenching the world's thirst for them will call for major investment in modern technologies."

Alternative Energy Choices

Oil will remain the dominant energy source for the near future even as new technologies, such as hybrid cars, will continue to increase efficiency. But oil, subject to highly charged geopolitics, is a non-renewable resource and major source of greenhouse gases.

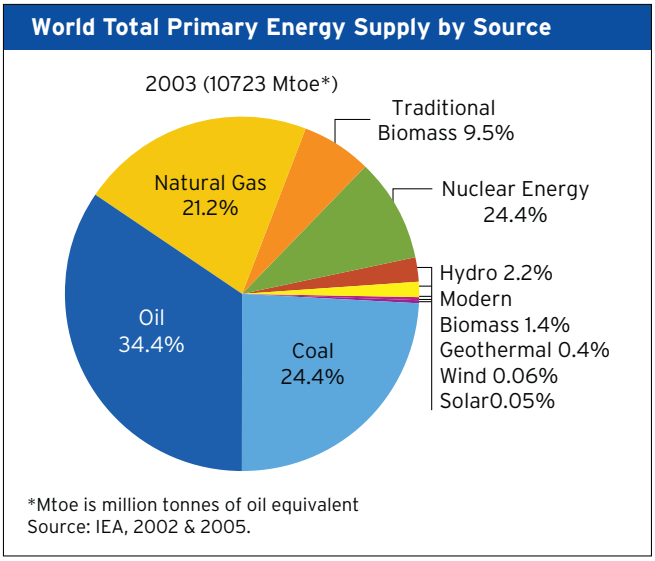
Natural gas, a far cleaner fuel than oil, presently accounts for about 21 per cent of global energy use, although its price has also been increasing. There are extensive reserves of heavy emission-causing coal (24 per cent of global energy use), still in the ground. Nuclear energy, the source of 6.5 per cent of global energy supply, is seen as a greenhouse-gas-free alternative, but it has other drawbacks, including the rising price of uranium, the unresolved matter of radioactive waste disposal, and high cost of building nuclear plants.

Many of the two billion people who do not have access to modern energy services use combustible renewable sources of energy such as firewood, charcoal, and dung, which account for 9.5 per cent of energy used, but these fuels emit high levels of greenhouse gases and the pollution they cause has a severe impact on health.

According to the IEA, modern renewable energy sources now account for 4.1 per cent of the world's energy supply. Of this, hydropower accounts for 2.2 per cent, modern biomass 1.4 per cent, geothermal 0.4 per cent and smaller fractions of a per cent for other sources, such as wind and solar. Up from $30 billion in 2004 to $38 billion, 2005 was a record year for investment in the renewable energy sector according to the Renewable Energy Policy Network (REN21).Technologies such as wind, solar, biomass, geothermal, and small hydro, the Network reports, now provide 182 gigawatts of electricity generating capacity, about four per cent of the world total..

At the 2002 Johannesburg World Summit on Sustainable Development, countries agreed to intensify their efforts to promote the use of renewable energy, including the transfer of new technologies to developing countries.

In March 2007, the 27 member states of the European Union agreed to adopt a binding target on the use of renewable energy. By the year 2020, 20 per cent of the energy consumed in the EU should come from renewable energy.



Biofuels have gained new attention in the recent year as a renewable energy source mainly for transportation. Biofuels such as biodiesel, bioethanol and even pure plant oil, can provide an alternative to gasoline or diesel, as a blend fuel or as pure biofuel. Brazil, the United States and the European Union all have adopted targets for biofuels. However, the increased cultivation of corn, canola and other energy crops for the purpose of biofuel production in recent years has lead to concerns over food security, with potentially less food production available for export to developing countries.

But even if the use of renewables increases, the rate of greenhouse gas emissions is still expected to rise significantly in the coming decades, although not as much as it would if present trends continue.

There are basically two ways to limit greenhouse gas emissions: reducing emissions or capturing emissions. Greenhouse gas emissions can be curbed through greater conservation and by decreasing energy intensity – using energy more efficiently. There has been a global decline in energy intensity of more than 28 per cent during the last decade. And new technologies are opening up new ways to capture carbon dioxide emissions before they escape into the atmosphere.

CSD 15 Objectives

The Commission on Sustainable Development, a unique UN body composed of 53 member states, working with intergovernmental and nongovernmental organizations, academics, business, scientists and trades-people, will in the next two weeks debate and adopt concrete policy recommendations on energy, as well as the related subject of industrial development, air pollution/atmosphere and climate change.

CSD 15 is not a substitute for negotiations that are taking place on any number of issues that are related to the session, such as in the context of the UN Framework Convention on Climate Change or the Montreal Protocol on ozone protection. But because the CSD encourages wide-ranging participation, it offers the opportunity to adopt policy recommendations on topics that would not ordinarily be considered in other contexts.

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More information on CSD-15, including the full press kit, can be found at:
http://www.un.org/esa/sustdev/csd/policy.htm

CSD-15 will be webcast live at:
www.un.org/webcast

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