EUROPEAN
COMMISSION

Environment fact sheet:

energy for sustainable development

- The major global energy challenges are securing energy supply to meet growing demand, providing everybody with access to energy services and tackling the causes and impacts of climate change.
- Specific priorities on energy may vary from region to region. Industrialised and rapidly growing economies focus on security of supply and on reducing the environmental impacts of energy use, in particular climate change and air pollution.
- For the poorest regions and people in the world, securing access to reliable, sustainable and affordable energy services remains a key challenge. Energy is needed to stimulate production, income generation and social development, as well as to reduce the serious health problems caused by the use of fuelwood and other solid fuels.
- The goals of securing supply, providing energy services, tackling climate change, avoiding air pollution and reaching sustainable development globally offer opportunities and synergies.
- Innovation and new energy technologies are essential to make progress on these issues, and they also create jobs and income.
- Increased energy efficiency, renewable energies and low-carbon technologies have a central role to play in meeting energy demand in a sustainable way. Industrialised countries should take the lead in their development and deployment.

Energy access

Limited access to energy services and heavy reliance on traditional biomass are hallmarks of poverty in developing countries. Currently, 1.6 billion people do not have access to electricity, and 2.4 billion people rely on traditional biomass — wood, agricultural residues and dung — for cooking and heating. Better access to sustainable energy services is necessary for economic growth and to develop businesses and income-generating activities. Homes, schools and health centres need adequate energy for lighting, communication, water supply, heating and cooling. Streetlights improve safety at night. Better fuels and cooking stoves are necessary to end the exposure of women and children to indoor air pollution and reduce the daily work of collecting wood.

Development of wind energy

The development of modern wind energy is an impressive example of successful policies to promote renewable energy. Global wind energy capacity has grown from a few hundred megawatts (MW) in 1990 to 48 000 MW in 2004. The annual growth rate between 2000 and 2004 was 28 %.

The EU hosts four fifths of global capacity — historically driven by strong national policies in Denmark, Germany and Spain and more recently in other EU Member States too. European companies now supply 90 % of the world market for wind turbines.

In 2004, global investment in new wind capacity was USD 9.5 billion. The EU accounted for three quarters of this sum. Over the years, the worldwide expansion of wind energy has reduced costs dramatically. In 1980 the typical cost was 46 US cents/kWh; today it is down to 4–5 cents/kWh. This equals a cost reduction of 12–18 % with each doubling of global capacity. Thanks to these improvements, wind power is becoming competitive with conventional power generation.

Fact 1: If policies remain unchanged, world energy demand will increase by over 50 % between now and 2030

Combining growing energy needs with environmental protection is the major challenge today. Energy production and use, including in the transport sector, are responsible for the bulk of greenhouse gas emissions and significant levels of air pollution.

The International Energy Agency (IEA) estimates that world energy demand will increase by over 50 % between now and 2030 if policies remain unchanged, with more than 60 % of the increase coming from developing and emerging countries. This would mean an increase of 52 % in emissions of carbon dioxide (CO2), the main greenhouse gas. The cumulative investment needed to meet the projected demand is estimated at some USD 17 trillion. The financial system has such a funding capacity, but matching capital with the needs associated with truly sustainable development poses a major challenge. However, there are also opportunities and synergies: tackling climate change produces co-benefits in terms of better air quality (reductions in CO2 produce lower emissions of SO2, NOx and PM2.5) as well as increased security of supply and resilience to oil price fluctuations.

Increasing pressure on international markets as oil and gas prices remain high is strengthening the case for improving energy efficiency and further diversification, particularly into renewables. Energy security concerns are also mounting in both developed and developing countries. Developing countries in particular are spending an increasing share of their GDP on energy imports, with devastating effects on economic growth and levels of indebtedness. Energy efficiency and greater use of renewable sources can thus reduce dependence on imported energy and contribute to economic stability and environmental sustainability.

Fact 2: The European Union has a comprehensive and target-based approach to sustainable energy

Since the late 1990s, the EU has been working towards increasing the share of renewable energy in primary energy consumption to 12 % by the year 2010. Under this umbrella, the EU set two operational targets in 2001: renewables should account for 21 % of electricity consumption and biofuels should provide 5.75 % of transport fuels.

Today, 6 % of the energy and 14 % of the electricity used in the EU already comes from renewable sources. The renewable energy sector is amongst the fastest growing in the EU. Annual turnover has reached EUR 15 billion and more than 200 000 jobs have been created. Europe counts more than 4.5 million green-power consumers. Through a combination of targets, fiscal incentives and market mechanisms to promote sustainable energy, the EU is delivering substantial and sound economic and environmental results.

This positive trend is further encouraged by risk-funding schemes supported by the European Investment Bank. These aim to improve the market conditions for adopting environmental technologies by supporting private investments related to the EU emissions trading scheme for greenhouse gases.

These efforts will have positive knock-on effects for developing countries. The costs of renewable energy technologies are falling and in the near future many renewables should be able to compete with fossil energy without subsidies. By promoting them now with targets, fiscal incentives and market mechanisms, this day will arrive sooner; energy producers will be better equipped and more prepared, and consumers will be more informed and more willing to adapt to a new energy landscape.

A March 2006 policy discussion paper on ‘Secure, competitive and

sustainable energy for Europe' sets a vision for a common EU energy policy that aims to reduce environmental impact, boost competitiveness and enhance security of supply. A coherent external energy policy is a part of this, enabling the EU to tackle common problems more effectively with energy partners worldwide.

Fact 3: The EU is promoting sustainable energy globally

The EU energy initiative

The EU energy initiative for poverty eradication and sustainable development (EUEI) was launched at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. It is a joint commitment by EU Member States and the European Commission to give priority to the important role of energy in poverty alleviation and in achieving the UN millennium development goals, and to act as a catalyst for action. The initiative raises *political awareness* among high-level decision-makers, encourages *coherence and synergy* in energy-related activities, and attracts *new resources* (capital, technology, human) from the private sector, financial institutions, civil society and end-users.

The EUEI is implemented through dialogue and specific partnerships with developing countries to help them achieve their national economic, social and environmental objectives, in particular by maximising energy efficiency, including more efficient use of fossil fuels and traditional biomass, and increasing the use of renewable energy.

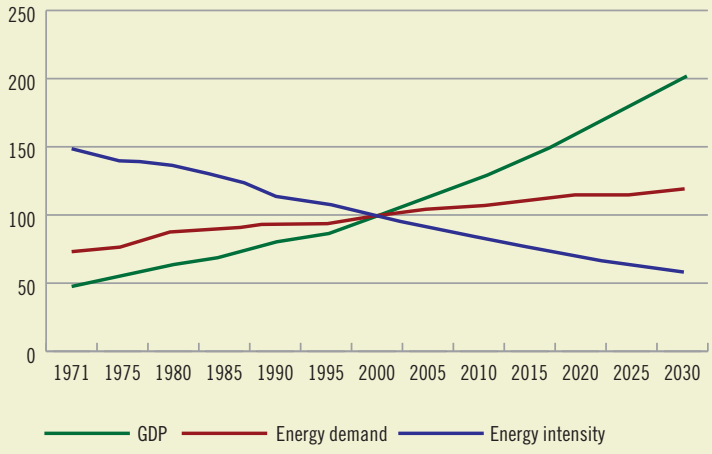
One of the outcomes of the EUEI is the EU energy facility (EF) of EUR 220 million, created to facilitate increased access to sustainable energy services for the poor rural population in sub-Sahara Africa, the Caribbean and the Pacific. The bulk of the EF contributes to investments that deliver energy services to poor rural areas. In addition, the EF contributes to projects supporting better governance and management in the energy sector and to facilitating investments in cross-border interconnections, in line with the priorities of the African Union's New Partnership for Africa's Development (NEPAD).

A call for proposals will ensure a demand-driven approach and allow high-quality projects to be co-funded with grants from the EF. The call is planned for June 2006.

Johannesburg Renewable Energy Coalition (JREC)

At the WSSD, the EU also initiated the Johannesburg Renewable Energy Coalition to promote renewable energy through a cooperative effort on the basis of national and regional targets and timetables. With over 90 member countries, the JREC complements and strengthens existing multilateral agreements, public and/or private partnerships, and initiatives promoting renewable energy sources.

Long-term development of GDP, energy demand and energy intensity (baseline) for EU-25



'Intelligent energy — Europe'

'Intelligent energy — Europe' is an EU programme to promote efficient use of energy and use of renewable energies. It tackles market barriers and raises awareness of European energy policy and legislation. Running from 2003 to 2006, the programme provides around EUR 250 million for the start-up of local and regional agencies and projects in four fields of action: energy efficiency, renewable energy, transport energy, and cooperation with developing countries.

Cooperation with developing countries is carried out in the Coopener field of action, in which actions focus on capacity-building and training, with the aim of strengthening local policies and legislation and encouraging provision of sustainable energy services for poverty alleviation and sustainable development. Priority is given to actions to be carried out in the context of the EU energy initiative (EUEI) for poverty alleviation and sustainable development (see Fact 3).

The EU is discussing cutting energy consumption by 20 % by 2020

An action plan encompassing a variety of actions and measures to achieve this target will be presented in 2006. The long-term goal is to decouple economic growth from energy demand (see chart with business-as-usual scenario). The 20 % target would make a total energy saving of around EUR 60 billion annually. Such savings would result in increased competitiveness and better living conditions for EU citizens, allowing the average EU household to save between EUR 200 and EUR 1 000 per year. It would also bring significant reductions in greenhouse gas emissions. Furthermore, improved energy efficiency can play a key role in meeting the challenges of reliance on increasingly insecure energy imports.

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The EU intends to increase R & D spending to 3 % of GDP by 2010

Innovation and new technologies are key to achieving an environmentally, economically and socially sustainable energy system. The EU has introduced market-based instruments, such as the emissions trading scheme, that provide energy operators with incentives to improve energy efficiency and use climate-friendly technologies. It is also increasing funding under its 2007–13 research and development (R & D) framework programme, in particular in the areas of renewables, energy efficiency and low CO_2-emitting power generation. The programme will also continue to make funding available for scientists from third countries to take part in European research projects — thus boosting the dissemination of know-how.

The EU's overall goal is to increase EU-wide public and private spending on R & D from 1.9 % to 3 % by 2010. Twenty 'technology platforms' have been established, bringing together interested stakeholders at European level with the aim of building a long-term vision on research needs, future market development and concrete measures. Many of these platforms focus on environmental technologies such as hydrogen and fuel cells, solar photovoltaic cells, and carbon capture and storage.

To encourage exchanges of experience, the EU has reinforced its cooperation with the International Energy Agency (IEA). The plan is to develop the JREC renewable energy policy and measures database into the largest online data repository of national renewable energy policies.

Since the Bonn World Renewables Conference in 2004, progress has been made towards developing a public–private funding mechanism for renewables. The JREC patient capital initiative (PCI) — otherwise known as the Global Renewable Energy Fund of Funds (GREFF) — aims to identify and bridge financing gaps for renewable energy business developers and SMEs, particularly in developing countries. Its launch is planned for 2007, and initial funding of around EUR 100 million should be feasible.

Global innovation through the Kyoto Protocol and emissions trading

The EU has long been committed to global efforts to tackle climate change, in particular the Kyoto Protocol. EU Member States have set aside EUR 2.7 billion for investments in emission-saving projects under the protocol, mostly in developing countries (through the clean development mechanism, or CDM), but also in other countries with Kyoto emission targets (through the joint implementation mechanism, or JI). The projects will generate emission credits that will help the EU Member States reach their emission targets by 2012 in a cost-effective way while transferring advanced technologies to the host countries and supporting them in reaching a sustainable development path. The EU company-level CO2 emissions trading scheme launched in January 2005 also allows the 11 500 installations covered by the scheme to use CDM and JI credits. According to market data, more than 2 400 CDM projects are in preparation.

Bilateral energy cooperation with partner countries

The EU is also cooperating bilaterally with key partner countries on energy. In line with the EU–Russia energy dialogue, the European Commission set up a technology centre in Moscow in 2002, which serves as contact point for Russian and European companies active in the fields of hydrocarbons, coal and electricity as well as renewable energy and energy efficiency. The centre should facilitate cooperation and technology transfer between the EU and Russia. The EU–China energy environment programme (2003–08) was established to strengthen EU–China cooperation on energy. Its aim is to promote sustainable energy use by securing supply under improved economic, social and environmental conditions, thus contributing to better environmental quality and public health in China. An EU–India energy panel was set up in 2005 to coordinate joint efforts, including in the areas of energy efficiency and renewable energies and development of affordable clean energy technologies. With these three countries, the EU has also established specific initiatives to tackle climate change.

Useful resources

Directorate General for Energy and Transport:
http://europa.eu.int/comm/energy/index_en.html

The European Union energy initiative:
http://www.euei.org/

The Johannesburg Renewable Energy Coalition:
http://europa.eu.int/comm/environment/jrec/index_en.htm

The International Energy Agency's World Energy Outlook:
http://www.worldenergyoutlook.org/

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Photos: Digital Vision, Corbis.