

Make Markets Work for Climate: Conference Document

International Conference in Amsterdam, the Netherlands
16-17 October 2006

This conference will explore how to create economic and financial opportunities to invest in low-greenhouse gas emitting energy technologies in developing countries. It will also focus on the measures that participants in the energy and carbon markets can introduce to make their energy policy friendlier to the environment. Investment decisions made today will be pivotal in determining the path of global energy consumption for decades to come.

Energy Demand and Climate Change: the Challenge

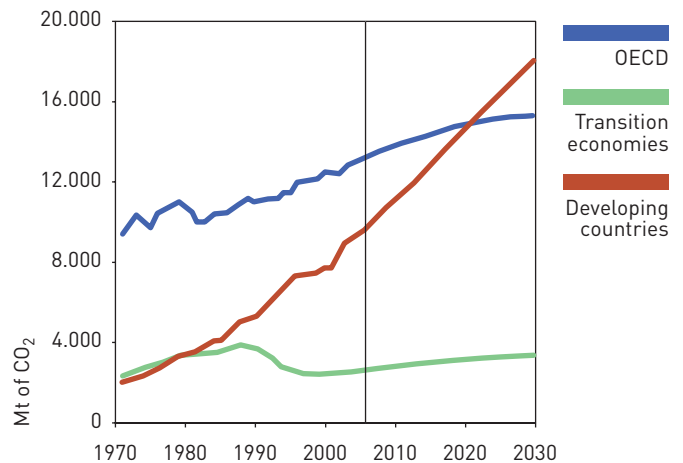
Energy is an essential ingredient for economic growth and development, requiring significant investments in developing countries over the coming decades. Energy security and access to reliable, affordable, and clean energy are of paramount importance to economic growth and development in developing countries. The International Energy Agency (IEA) estimates that, if current energy supply and use continue, the need for energy in developing countries will double by 2050. By this time, countries will consume more than half of the world's energy supply, compared to about one-third today.

Meeting the energy needs of developing countries on the basis of low-greenhouse gas emissions is an urgent and challenging undertaking. If current trends continue, the most rapidly growing component of energy demand in developing countries will be met through high CO₂-emitting technologies. Fossil fuels (oil, gas, and coal) will account for around 80 percent of this growth between now and 2030. Without cleaner technologies such as coal gasification or carbon sequestration, greenhouse gas emissions by developing countries will double between now and 2030 and increase by 250 percent by 2050. Moreover, they will exceed OECD emissions sometime in the 2020s (see figure).

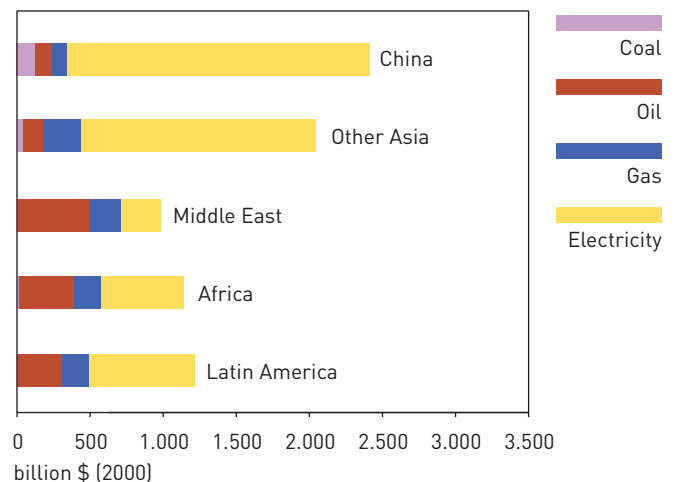
Financing requirements

According to the IEA, about US\$8 trillion, or US\$300 billion per year, will be needed to meet the energy demands of developing countries over the next three decades (this estimate is based on current policies of sector development, technical and environmental standards and construction costs). Most of this amount will be invested in electricity generation capacity (see figure). The annual investment requirements for just the power sector will grow from about \$160 billion in the current decade

World Energy-Related CO₂ Emissions



Energy Investment Needs, 2003 - 2030



Source: IEA 'World Energy Outlook 2004'



to about \$280 billion from 2020 to 2030. Based on current forecasts, the four largest economies (Brazil, China, India and Russia) account for nearly 50 percent of the annual investment under this scenario.

The investment needs for energy need to be supplemented with the incremental investment cost of achieving a lower carbon energy base. The estimated cost of reducing carbon emissions varies: from less than \$10 billion per annum to over \$200 billion per annum depending on assumptions and emission targets. According to the World Bank, the incremental cost of de-carbonising the power sector only in developing countries could be as high as US\$ 30 billion per annum between now and 2050, depending on the level of decarbonisation and the assumed baseline.

Advancing technologies

Technologies that are now economically competitive or could become competitive in the next decade or two can make a significant contribution to the necessary carbon reductions in developing countries. The IEA estimates that emissions in developing countries could be 47% below the reference levels by 2050 if new, energy-efficient technologies, different forms of renewable energy, and nuclear power are used. If technical barriers to the development of carbon capture and sequestration techniques are overcome, developing country emissions could be reduced by as much as 54% below the reference levels (see figure for global reductions).

New energy technologies will be needed. In turn, the technologies require supporting policies and programs to address technical and cost-related challenges. Many of these technologies can make a significant contribution over the next decade or two. At the same time, breakthrough technologies such as hydrogen fuel cells for vehicles will need R&D support before they can be commercialised. As Germany and the US have demonstrated with their wind and air pollution control technologies respectively, government initiatives can accelerate technological developments and help innovative technologies to become competitive in the market place.

Mobilising Markets for Clean Energy

No clean carbon technology package is financially viable without some combination of internalising environmental externalities into the price of energy, providing incentives for implementation and further cost-cutting research and development. As a result, current investment generally moves towards higher greenhouse gas emissions intensive investments, making the task of implementing a suitable energy policy in developing countries all the more difficult.

To make markets work for clean energy and climate protection in developing countries will require a coordinated strategy comprising four components:

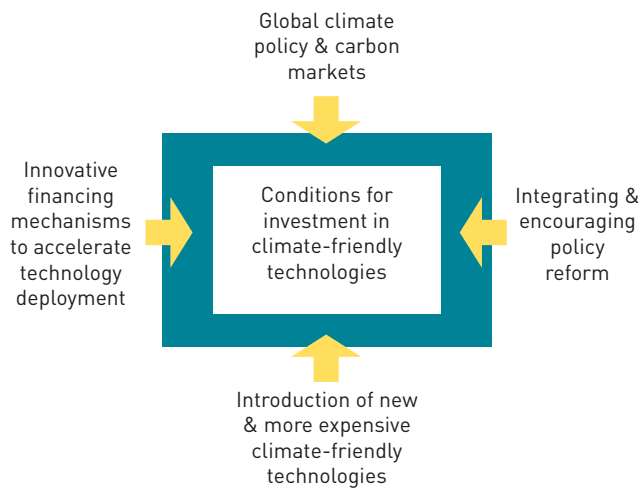
- **Developing innovative financing mechanisms to accelerate the deployment of existing competitive and climate-friendly technologies** in both the public and private sectors;
- **Promoting the introduction of new and more expensive climate-friendly technologies through innovative public/private support mechanisms** that provide the additional finance to make these new technologies competitive;
- **Integrating and encouraging policy reform** to overcome market barriers to the deployment of clean energy technologies, and
- **Linking the carbon market to the energy financing and policy reform strategy.**

Financial markets and access to capital are critical in helping to bring competitive clean technologies to the market.

Financial institutions (both public and private) can take actions to improve access to capital and create more favourable lending terms for competitive clean-energy technologies. Energy efficiency and renewable technologies face particular challenges in developing countries, because of the small size of most projects, the lack of expertise in evaluating performance risks, and the dearth of small and medium size enterprises in these markets. Innovative financing mechanisms can overcome these barriers in both public and private sector markets.

Innovative but less competitive clean-energy technologies (eg, carbon capture and storage) need incentives to penetrate developing country energy markets and improve their competitiveness. Public sector institutions can provide direct and indirect financing via grants, allowing the higher cost of

Making Markets Work for Climate



Good governance is an essential companion to additional financing and technical support for energy and technology markets. National, regional, or local economic and regulatory policies can either assist or hamper clean energy deployment. Reforming the laws that govern the production, distribution, and access to electricity, preferential tax treatment (eg, accelerated depreciation), and standards for equipment efficiency or fuel content, can make an important contribution to opening the path to greater dissemination of clean energy technologies in developing countries.

The international carbon market is a fast-growing and evolving market. The overall value of the aggregated carbon market exceeded US\$10 billion in 2005 and US\$7.5 billion in the first quarter of 2006. Some analysts have predicted that it will be valued at between US\$25 to US\$30 billion in 2006. Such growth suggests that the carbon market can become one of the important sources for raising the future energy requirements of developing countries, which are estimated at US\$ 8 trillion. The long-term viability of this source depends on carbon market continuity and certainty. In order to raise the enormous amounts of money required, a whole new carbon market needs to be created through new, innovative mechanisms.

new technologies, loans, loan guarantees, credit enhancements, and other instruments to be written down. In turn, this makes such technologies more competitive. The World Bank's new Investment Framework for Clean Energy and Development is designed to foster the development of these innovative but less competitive technologies so that costs can be driven down.

Private sector investors can be central players in bringing clean energy to market, once new financing tools are available for competitive technologies and once the cost of new technologies is brought down to a competitive level. According to one estimate, worldwide investment in clean energy in 2005 exceeded \$41 billion. Admittedly almost all funds were invested in developed countries. Although larger flows of private and public sector finance go into conventional energy projects in developing countries each year, these flows need to be shifted toward clean energy. Companies also need to look internally at organisational measures to increase the focus on and investment in clean energy technologies as compared to conventional fossil fuel investments.

This conference is about charting a strategy for international financial institutions, private banks, private investors, and governments. A strategy that expands investment in both existing and innovative clean energy technologies, encourages reform of relevant policies in developing countries, and links the carbon market to new clean energy investment and policy reform efforts.



Ministry of Housing, Spatial Development and the Environment of the Netherlands, The World Bank Group, ABN AMRO, Shell, the World Business Council for Sustainable Development (WBCSD) and the International Emissions Trading Association (IETA)

