International Chamber of Commerce
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Discussion Paper

Technology, Technology Transfer and Enabling Environments

Prepared by the Commission on Environment and Energy

Background

The most economically feasible ways to address the long-term challenge of climate change, while meeting the needs and aspirations of sustainable development, will require the development, commercialization and widespread dissemination of both efficient existing technologies and new, currently non-commercial technologies that can help reduce greenhouse gas (GHG) emissions into the atmosphere. Moreover, innovation will substantially improve the future performance of current and proposed technologies. Traditional technology development and implementation need to be enhanced and broadened to help support the implementation of climate policies and and ojectives under the UNFCCC and Kyoto Protocol.

Business is and will continue to be a primary source of such technologies. In providing enabling frameworks for technology development and cooperation, government policies should encourage business to undertake the research and development required to create innovative technologies.

Recommendations

- Innovative technology provides the promise of powerful tools to manage long-term risk, preserve prosperity and promote investment. Policies should be developed at national and international levels to encourage the research, development and deployment of technologies that help address growing emissions, improve access to energy, support economic development, and support adaptation, particularly in developing countries. Electric power, Transportation and fuels and end-use energy applications will be particularly strategic areas.

- Clear technology objectives should:
    - Promote more widespread use now of existing efficient technology in developed and developing countries;
    - Encourage earlier retirement of less efficient but still productive technology;

- Stimulate research and development to create innovative, affordable, lower GHG technologies sooner

- The potential of maximum benefit to all partners involved in development and dissemination of more climate friendly technologies will be greatly facilitated if appropriate enabling environments are developed by all countries.

Some Fundamental Issues in Technology, Technology Transfer and Enabling Environments

Investment

Business has been, and will continue to be, the main source of innovation, development, commercialization and wide spread dissemination of technologies, led by successful and profitable companies. Such companies bear the costs of developing such technologies and need to realize a return on their investments for them to be sustainable. For every one successful innovation, many good ideas fall by the wayside – some taking substantial funding with them. Business must be encouraged to take this risk.

For such technologies to become a global reality, governments must promote short- and long-term enabling frameworks for commercialization and dissemination of technologies. These frameworks should encourage technology utilization, technology transfer and capacity building, so that both developed and developing countries can benefit from technological progress.

Investment decisions for long-lived facilities typically involve considerations extending well beyond the Kyoto Protocol's first commitment period. Consequently, these decisions may be affected by changes in the second commitment period, including emissions obligations, participating Parties, covered gases, global warming potentials, flexibility mechanisms and procedures for compliance and non-compliance. Processes that affect later periods should be defined transparently, so that investment risk can be assessed.

The Choice of Technology

A wide range of technologies will be needed, with the choice of which technology being dependent on local circumstances. There is no "one size fits all" solution. No single technology appears to have the potential to provide the majority of emissions reductions necessary to stabilize atmospheric concentrations of greenhouse gases. Many technologies can make a difference now, and in many cases, are available now given the right enabling frameworks. For the long-term, innovative currently non-commercial technologies will be necessary.

The Use of the Marketplace

Consequently, government policies which seek to choose "winners" and "losers" among technologies do not provide an enabling framework – on the contrary, they close off options and

discourage innovation. The establishment of positive or negative technology lists would serve to hinder effective long-term utilization of the most appropriate technology for the countries where they are to be used. Decisions to prohibit certain technologies or substances may lead to a potential loss in emissions reductions in the short term, due to a sharp decline in investment to optimize that technology. Decisions about appropriate technology should therefore be part of the process by which projects are approved by host countries.

The international marketplace should also provide supportive frameworks for cleaner technology development, commercialization and dissemination. Governments should remove market barriers and strengthen enabling frameworks for technology innovation and dissemination. Trade and investment are important means for business to promote capacity building and technology transfer, especially through foreign direct investment. In that regard, businesses will site investments according to acceptable requirements for investment security and with the potential for a competitive return.

Technology Cooperation and Enabling Environments

Technology cooperation is inextricably linked to the broader enterprise of capacity building. Hardware in and of itself is not sufficient, and issues of infrastructure, training and maintenance have to be factored into the formulation of enabling frameworks. To advance capacity building, enabling frameworks should:

- Minimise the chances for sub-optimal investments. Uncertainty about baselines and additionality should be clarified to support investments.
- Unleash technology innovation and nurture knowledge-based development.
- Create incentive structures and market premiums for technologies and business processes that meet the climate change challenge through knowledge.
- Build scientific, technological and management capacities in developing countries to enable people, governments and enterprises to directly assess and assimilate the challenges and initiate credible actions.

Enabling frameworks within the Business community

Enabling frameworks should also be provided within the business community and by individual companies. Technology cooperation and capacity building should be managed as 'value-adding' to the core business. Key contributions and considerations from business include:

- Respecting the needs of host countries and communities
- Providing education and training
- Protecting the environment
- Building relations with stakeholders
- The realization of mutual benefits

A wide range of voluntary approaches, initiatives and agreements involving business provide custom-tailored long-term responses, offering early and cost-effective action and allowing for great flexibility to suit the different conditions and circumstances in various OECD countries and industries. There is a broad diversity and range of voluntary actions, many of which include setting goals, taking measures to achieve them, monitoring and communicating their progress and achievements.

Technology Transfer

From a business point of view, there are two distinct types of technology transfer: private and public. Most companies engage in bi-lateral, company to company commercial arrangements. Companies enter such transactions based on many factors, the "right" partner, an "attractive" market, access to raw materials, transparent, stable and equitable legal and financial structures, safe and secure working conditions and a good, local workforce. In these situations, companies are encouraged to make a long-term commitment and to integrate with local culture and values.

And what technology should be transferred? To business it is very evident that today the widespread use of existing, efficient technology is indispensable. This should not be ignored in the drive towards "break-through" and "leading edge" solutions. The 2 billion people in the world without access to commercial electricity are not asking for a "state of the art" solution, but clean and practicable solutions now.

CONCLUSIONS

Assessment is needed to set priorities

Many options have been identified for improving greenhouse gas emissions reduction technology. Properly conducted technology assessments will be critical in deciding which technologies are most appropriate in a given circumstance and which options are likely to have the highest probability of success.

Technology only part of the a solution

Providing technology and investment alone are necessary but insufficient by themselves to combat climate change. Projects must integrate with social, political, and environmental needs. In addition, the impact of population and GDP/capita must also be considered in projecting future CO_2 emissions.

Multiple factors affect the ability of a given technology to contribute to reductions in, or mitigation of, greenhouse gas emissions, and frameworks should provide the incentives and flexibility to permit a wide range of options. Capacity building is an integral part of successful technology transfer.

There will be no true solution to climate change without sustainable development, poverty eradication, business development and investment in developing countries. Inherent to this is the availability and affordability of climate-friendly technology and energy in Asia, Africa and worldwide. Economic growth will generate resources and stimulate investment in research, development and commercialization of new and advanced technologies. Industry is ready to play its part in researching, developing and bringing to market technologies that will address climate change. Governments should also play their part in providing the necessary enabling frameworks.

Fundamentals of Enabling Frameworks for Technology Development, Dissemination and Cooperation

The potential of maximum benefit to all partners involved in development and dissemination of more climate friendly technologies will be greatly facilitated if a number of fundamental conditions are met. These include:

- a stable economic system and an attractive investment opportunity for investing partners, including intellectual property right protection and strong contractual arrangements;
- transparent and equitable legal and financial structure and sound environmental laws;
- realistic expectations from the host country and the communities of the benefits that may result;
- a long-term commitment and dedication of resources by all partners;
- a fair distribution of benefits as a goal for all partners;
- industry respect for local culture and values;
- a safe and secure working environment for all employees and contractors.
- no unnecessary barriers to movement of personnel and materials.