

CPI – FEEM Workshop on The Challenge
of Financing Low Carbon Growth

Technology Innovation and Diffusion

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Structure

Regarding the diffusion and development of mitigating technologies

- I. What policies should aim at in the electricity sector?**
- II. What key characteristics of policies?**
- III. How to facilitate technology transfer?**

Electricity Roadmap: mitigate emissions and keep electricity affordable

- ❑ Electricity accounts for 40% of energy related global emissions, ahead of transport (20%)
- ❑ Current mix : 2/3 fossil fuel; 1/3 CO₂-free
- ❑ For 2° C, models require a major turnaround by 2050 : 2/3 CO₂-free; 1/3 fossil fuel with CCS
- ❑ Mitigating technologies are already available at zero or low over-cost, on both the demand (efficient lighting, insulation, heat-pumps...) and the supply-side (CO₂ free generation : hydro, nuclear and wind, low emitting technologies like CCGTs and supercritical coal fired plants)
- ❑ Decarbonising the mix could make the difference and allow to substitute electricity to fossil-fuels at the end use (heating, plug-in hybrid and electric vehicles...)

To achieve this road map, energy policies are needed at the national level

Energy Policies are key to reducing CO2 emissions at an affordable cost

- **Stable policies based on a shared and clear long term vision** : in the power sector, the investment process takes 6 to 15 years and plants lifespans are between 30 and 70 years.
- **Policies adapted to the maturity of the technologies and complementing price by command&control instruments:**
 - ✓ to enable now massive deployment of available and competitive least emitting technologies on both the demand (labels, norms, standards, prices reflecting total costs including a CO2 value) and the supply sides (control and command regulations, prices reflecting the total costs of investment and CO2 value)
 - ✓ beyond the next 15/20 years, to promote R&D and demonstration (public private partnership) for next generation technologies (CCS, nuclear Generation 4, Photovoltaic, electric vehicles...)

Policies to foster international cooperation on technologies

- **In the electricity sector, technology transfer implies transfer of know how and local manufacturing**
- **To foster the sharing and transfer of technologies, as existing competitive mitigating technologies are not available in all countries,**
 - For mature technologies :
 - With economic instruments : CDM-type instruments including large hydro, coal or nuclear projects, energy efficiency programmes...
 - with regulation instruments : remove barriers to technology flows, facilitate foreign investment through joint ventures, reduce tariffs on imported and exported goods for mitigating technologies...
 - For future technologies : collaborative research at international level
- **With specific approaches for less developed countries : i.e. deployment of existing and competitive low CO2 technologies backed by international financial support (MDBs)**