

**Workshop on mitigation potentials,  
comparability of efforts and sectoral approaches**

**Bonn, March 24<sup>th</sup> 2009**



**Technology  
roadmap and  
supporting  
policies in the  
power generation  
sector**

**François Dassa, Head of Corporate International Relations  
Strategy, Prospective and International Affairs**

# 1. New challenges for the Power sector : mitigate CO2 emissions and keep electricity affordable

Energy is facing a new context, much different from the 90 's

- climate change : Power is part of the problem as well as part of the solution : **Electricity accounts for 40% of energy related global emissions, ahead of transport (20%).**
- The investment need is both a challenge and an opportunity  
**More than 5000GW (a doubling of current capacity) to be built over the next decades (in developing countries to meet demand, and in the OECD to replace ageing plants)**
- 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**)
- Between 2025 and 2050, future promising technologies should have been deployed (**Carbon Capture and Storage, Photovoltaic, Nuclear generation 4, electric vehicles...**)

**Decarbonising the mix could make the difference and allow to substitute electricity to fossil-fuels at the end use (heating, plug-in hybrid vehicles...).**

## 2. To achieve this road map, national energy policies are key

**Electricity markets are essentially local, with governments playing a significant role. National 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** :
  - ✓ 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 (enabling control and command regulation, 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...)
  - ✓ With a good quality design, for effectiveness.

### 3. We also need to foster international cooperation on technologies

- To shape a common long term sector perspective : for existing technologies (maturity, best practices, most effective regulatory environment...) and also for those of the future.
- To foster the sharing and transfer of technologies, as existing competitive mitigating technologies are not available in all countries,
  - For mature technologies :
    - With technology-oriented financing mechanisms : programmatic, open to all technologies (hydro, coal or nuclear projects, energy efficiency programmes) based on the NAMAs of each countries
    - with regulation : facilitate joint ventures, capacity building
  - For future technologies : collaborative research at international level with ex ante IPR settlement
- With specific approaches for less developed countries : i.e. deployment of existing and competitive low CO2 technologies backed by international financial support (MDBs)

## 4. Preliminary conclusions for the power sector

- **A specific sectoral approach could be based on:**
  - tools to promote knowledge sharing on technologies and on energy policies
  - Development of economic instruments (technology oriented financing mechanism), and of policy measures that promote the sharing of available technologies
  - for future technologies, promote international collaborative research with developing countries with ex ante IPR settlement