The Carbon Market

IPCC Working Group III Chapter 13 - Policies, Instruments and Co-operative Arrangements

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Purpose of this Talk

- Review Information in the AR4 relating to the carbon market
- Describe Where we are Today

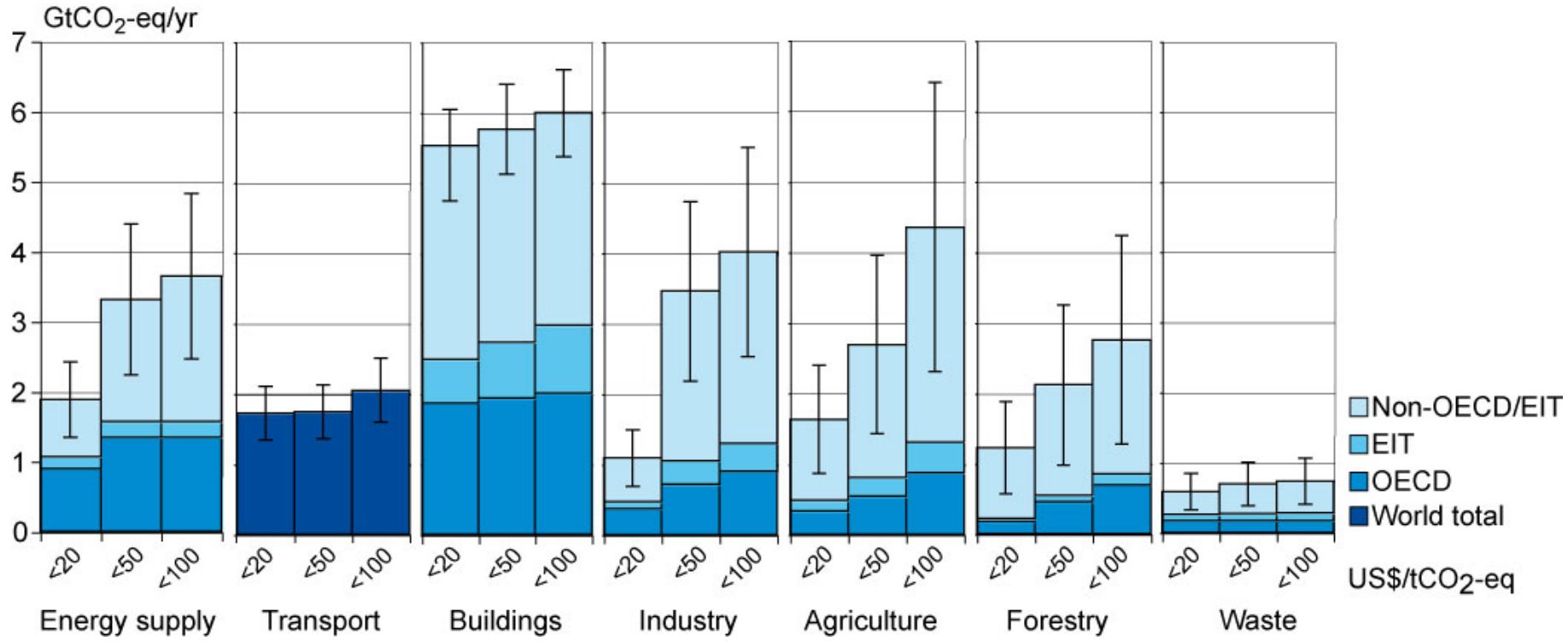
Policies that provide a real or implicit price of carbon can create incentives for producers and consumers to invest in low-GHG products, technologies and processes

- Such policies could include economic instruments, government funding and regulation
- Carbon prices between 20-80 US$/tCO2 by 2030 and 30-155 US$/tCO2 by 2050 are consistent with stabilization at 550 ppm CO2-eq2 by 2100
- Studies that take into consideration induced technological change get lower prices: 5-65 US$/tCO2 by 2030 and 15-130 US$/tCO2 by 2050

Other Main messages…

- Improving, and expanding the scope of, market mechanisms (such as emission trading, Joint Implementation and CDM) could reduce overall mitigation costs
- The lower the stabilization levels (550 ppm CO2-eq or lower) the greater the need for R&D efforts and investment in new technologies during the next few decades

An effective carbon-price signal could realise significant mitigation potential in all sectors



Note: estimates do not include non-technical options, such as lifestyle changes.

There are a wide variety of national policies and instruments available to governments to create incentives for action

- Taxes and Charges
- Regulations and Standards
- Tradeable Permits
- Financial Incentives
- Voluntary Agreements
- Information Instruments
- Research and Development
- Non-Climate Policies

There applicability depends on national circumstances. All instruments can be designed well or poorly and to be stringent or lax. All must be monitored and enforced to be effective.

Criteria for Evaluating National Policies and International Agreements include...

- **Environmental Effectiveness**
  - Needs to actually achieve meaningful reductions of GHG emissions
- **Cost Effectiveness**
  - Needs to achieve environmental and distributional goals at the lowest possible cost
- **Distributional effects**
  - Needs to be fair (equity and competitiveness) to be politically acceptable
- **Administrative Feasibility**
  - Needs to be easy to administer and with minimum legal constraints

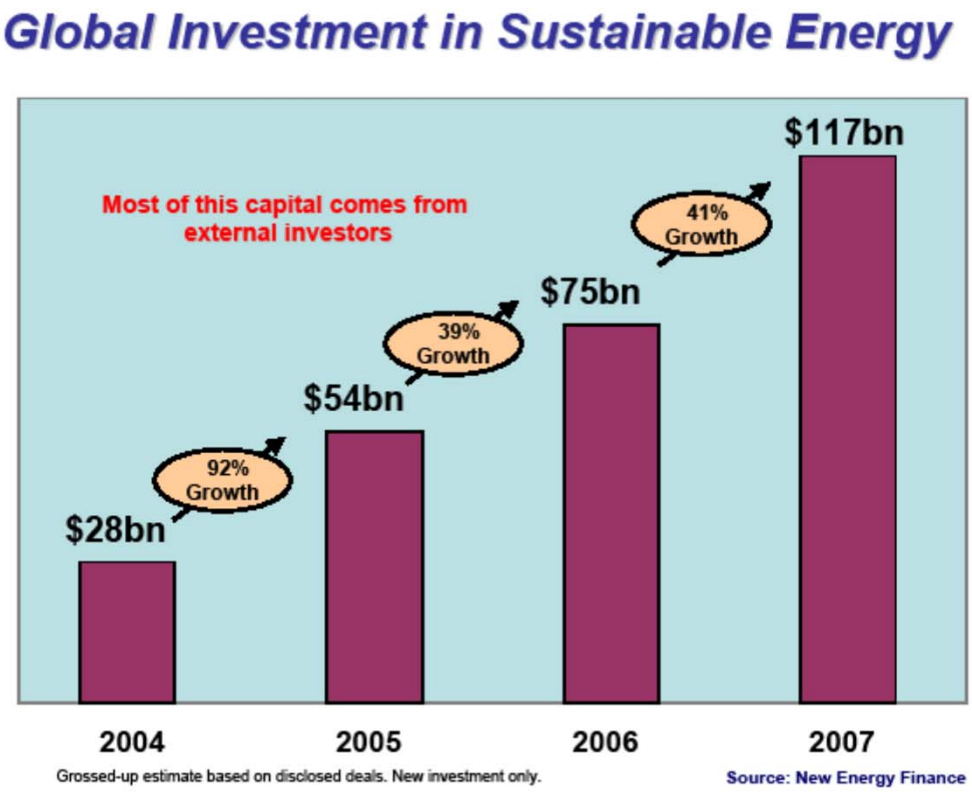
Emission Trading Systems are a main Means of creating a Carbon Market

- Firms are issued emission permits which may be bought or sold across firms to reach an emission target – Environmental effectiveness is determined by the volume of permits
- Advantages
  - Highly likely to achieve emission reductions
  - Can be more politically palatable than taxes
  - Provides flexibility to firms to seek out low cost options
- Disadvantages
  - Price volatility and price uncertainty
- Example
  - EU Emission Trading System, Switzerland

The Main Design Features Which Need to be Considered in Developing an Emission Trading System

- Level of stringency
- Coverage
- Offsets
- Cap-and-trade versus rate-based trading
- Method of Allocation
- Cost control measures
- Interactions with other policies and measures

However, the carbon market needs to be supplemented with a package of other policies when producers and consumers do not respond to market signals...for example



Investment has taken off since 2004

…increased substantially due mainly to regulations and financial incentives in a few countries…a carbon price could do the same over a longer time period

Examples of Regulations and Financial Incentives responsible for the growth in investments for renewables

Regulations

- Renewable Performance Standards
- Performance standards for new facilities
- Green power purchasing requirements
- Interconnection standards
- Net metering rules
- Generation disclosure rules
- Contractor licensing
- Equipment certification
- (Solar) access laws/guidelines/zoning codes/building permits

Financial Incentives

- Feed in tariffs
- Rebates
- Grant programmes
- Loan programmes
- Bonds
- Production incentives
- Government purchasing programmes
- Equity investments, including venture capital
- Insurance programmes

Where Is the Carbon Market Today?

The 2007 Market Grew from €23 B in 2006 ≈1.6 GtCO2e

- Total Value €40 billion (≈2.7 GtCO2e)
- EUAs transactions ..€28 billion (1,600e)
- CDM & JI: €12 billion
  - CDM: 947 MtCO2e
  - JI: 150 MtCO2e

Source: Point Carbon

ET Systems - Announced and/or Under Development Could Affect the Future Market

- Australia
- New Zealand
- Canada
- Japan (under study)
- United States
  - **Western Climate Initiative (7 States/2 Provinces)**
  - **Regional Greenhouse Gas Initiative (10 States)**
  - **Midwest Governors Association (6 States/1Province)**
  - **Federal legislation under development**

50 % US GHG emissions

What might the UNFCCC do to expand the market and make it more efficient and what should be left to national governments?

- UNFCCC
  - Promote continuity
  - Stringency
  - Rules/guidelines
  - Offsets
  - Encourage the linking of registries
- National Governments
  - Coverage
  - Allocation
  - Rules/guidelines
  - Interaction with other policies
  - Price control measures

In some cases there may not be a simple dividing line

Summary

- A market-based mechanism can draw significant amounts of capital, both public and private, to the problem of climate change and to some extent transfer climate-friendly technology to developing countries.
- Preliminary analysis of the EU ETS suggests that the system has reduced emissions below what they might have been otherwise by 2.5-5 percent (Buchner and Ellerman – forthcoming)
- Significant lessons have been learned regarding emission trading systems and regulatory infrastructure, e.g., the need for good emission data
- These lessons can provide a roadmap for improving the CDM and expanding the carbon market to include new market participants and regulatory regimes.
- However, market continuity is also a significant issue if projects cannot recover payments for carbon credits beyond 2012.

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