Competitiveness & carbon leakage:
Myths and Realities, Solutions and Pitfalls

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IEA DAY

9 December, 2008

A few words on competitiveness issues and climate policy

- Starting point: the EU emissions trading scheme (EU ETS) introduces cost on industry and power generation – **other regions lag behind in climate policy**
  - ETS developing in: Australia / Switz. / Canada / US States
  - Discussions in US Congress / Japan (mandatory) / South Korea
- Concern: **enhanced competitiveness of non carbon constrained producers could lead to 'carbon leakage'**
  - E.g. Reductions achieved by the EU ETS could result in higher emissions elsewhere
- Which activities? **Trade-exposed, energy- or GHG-intensive**
  - Aluminium: **76%**, of global output is traded, both GHG and electricity intensive
  - Iron and steel: **32%**, high CO_2 content
  - Cement : **6%** but very high carbon cost per value added

Carbon cost impacts

- **Direct costs**: allowance purchase
  - (EUAs currently trading at around €22 /tCO_2)
- **Indirect costs**: effect of CO_2 price on electricity prices
- Ability of a sector to "pass-through" extra costs without inducing increased competition from outside:
  - Transport costs
  - Market power
  - Product differentiation
  - …

Carbon leakage under asymmetric climate policies: *Myths and Realities*

Competitiveness- driven CL

- a national sector's perspective -

Increase in emissions outside EU
(as a result of the EU ETS)

=

Decrease in emissions in EU
(as a result of the EU ETS)

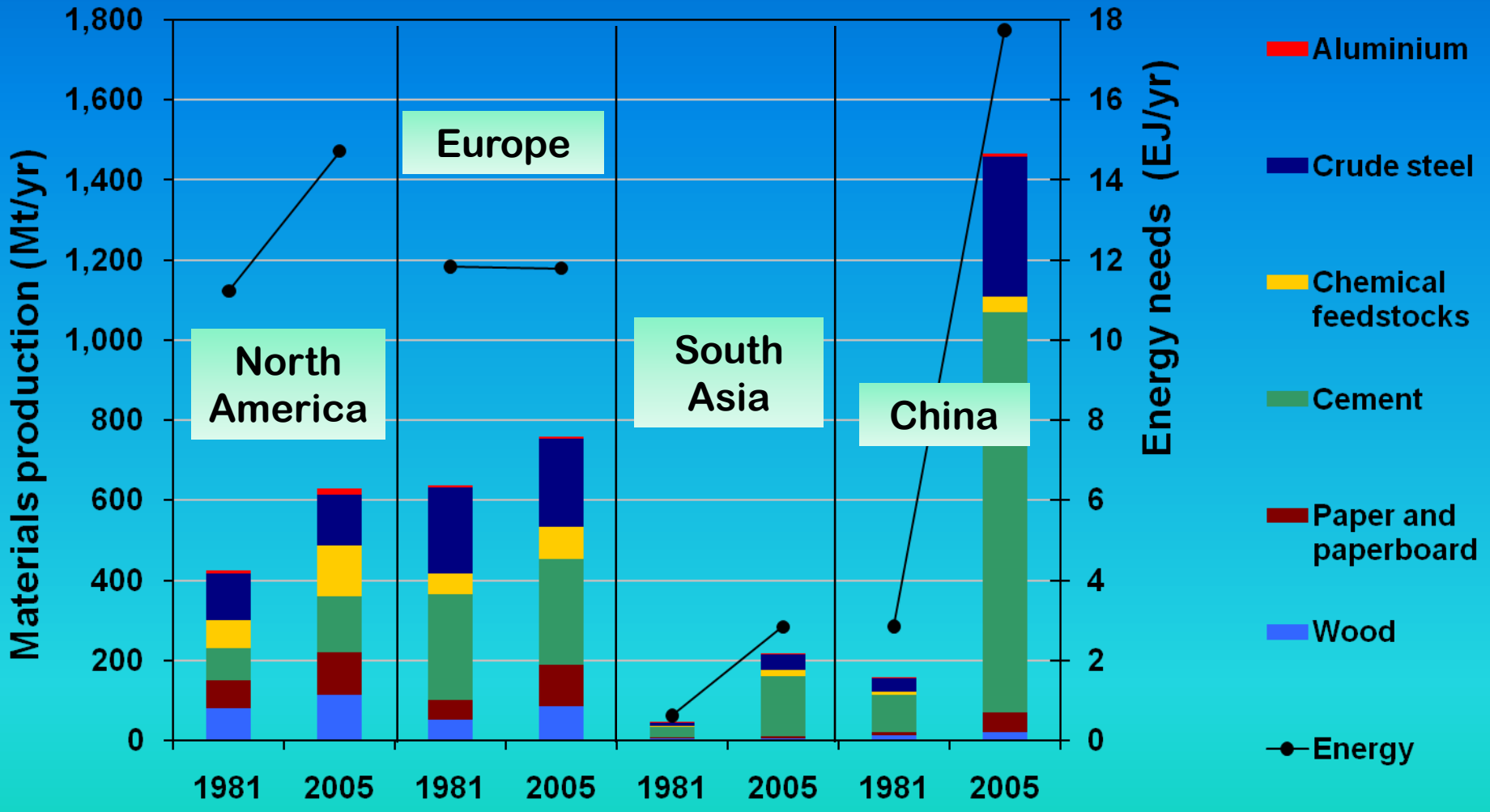
Consumption-driven	Supply-side driven

→ Short term: **Production**

→ Longer term: **Investments**

Changes in trade flows as a result of the EU ETS
= Indicator of carbon leakage

Industrial output growth: 1981-2005
Main products / world regions



Source: IEA, 2007, *Energy use in the new millennium*.

How significant is the carbon leakage pb for trade-exposed emission-intensive sectors?

- **Risks restricted to a few industry sectors (and sub-sectors)**
  - **Iron & steel, cement, paper and pulp, non-ferrous metals**

- Economic simulations of carbon leakage show a risk for some sectors
  - Never wipe out the effects of the climate policy (i.e. > 100% leakage never met)

- Current trade flows don't (yet?) reflect a CO_2 cost impact in Europe – but is there a real CO_2 cost yet, and does it affect production costs *today*?

Summary of EU-ETS Phase 1 (2005-2007) *Preliminary assessment*

- No statistical evidence of a change coinciding with the introduction of the EU ETS
- Great differences btw sectors …
  - Trade intensity
  - EU-ETS costs: emissions intensive (free allocation) vs. electricity intensive sectors
  - Allocation
- … but some common features across these activities
  - High price environment for industrial commodities
  - Recent slow-down in these activities
- Yet, Phase 1 is a poor indicator of what may come
  - End of long-term electricity contracts concluded pre-liberalisation
  - More stringent targets (i.e. higher CO_2 prices)
  - Not enough time to see investment decisions change
  - *But can we identify CO_2 price effects on production and invts?*

Carbon leakage
Overview of solutions and pitfalls

Addressing carbon leakage

Effectiveness of policies?

- Electricity-intensive *and* emissions-intensive
- Exports *and* imports
- Production *and* investment leakage

Solving carbon leakage?

- **Domestic-oriented actions:**
  - **Lowering the cap**
  - **Allocation modes** (EU, US bills, Canada, Aus, NZ, Swz)
  - **Recycling revenues or direct subsides**
- **Measures with int'l implications**
  - **Border adjustments** (US and EU)
    - Levelling the carbon costs for imports and exports (rebates)
    - Include imports in the ETS
      - On the basis of which goods? Which CO_2 content for goods?
      - Think carefully about CO_2 price effects and indirect effects (electricity)
      - WTO compatibility uncertain
  - **"Sectoral approaches"**

➔ **Critical assessment of each option: effective?**

Key Policy Messages (1)

- **Risks restricted to a few industry sectors (and sub-sectors)**
- **Governments should not speculate on the risk of leakage,** but simulate effects and monitor precise indicators:
  - Short term: trade flows and production levels
  - Long term: investment levels
  - ➔ **Measurable impact of CO_2 cost?**
- **Yet drivers of investment are multiple**

Key Policy Messages (2)

3 challenges for measures to address CL

1. The debate on CL = a second best policy option!
   - 1st best solution is the international agreement
   - Yet even if there were an int'l agreement, the debate would not end…
2. Need to **maintain a carbon price** signal in the economy
   - ➔ **Policy challenge**: Balance prime mover advantage (R&D) with risk of carbon leakage
3. Consider designing **flexible measures** to avoid:
   - Lock-in of less efficient policies (e.g. free allocation versus auctioning)
   - Commit to on-going assistance and react to progress made in int'l negotiations

Thank you

Reinaud J. (2008a) *Issues behind competitiveness and Carbon Leakage*

Reinaud J. (2008b) *Climate Policy and Carbon Leakage – Aluminium*

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