



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

How to address carbon leakage in the EU ETS

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Legal Issues Environment and Energy, Climate
Protection; Emissions Trading

Federal Ministry for the Environment, Nature
Conservation and Nuclear Safety
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Carbon leakage

- **Carbon leakage** = ETS induced relocation of production/emissions to regions outside of ETS
- **Carbon leakage can potentially be triggered by**
 - direct carbon costs (certificates needed for emissions caused by production)
 - indirect carbon costs (higher prices for power input)



When does carbon leakage occur?

■ Carbon leakage is likely to occur

if carbon costs are high and cannot be passed on consumers via product prices

- as long as climate policy commitment is globally incomplete
- if production is exposed to international competition

■ Carbon leakage is less likely to occur

if carbon costs can be passed on consumers

- if products are highly specialized
- if other aspects dominate location decisions (e.g. exchange rate risks, transport costs, close cooperation with EU partners)



Approach to identify sectors

- **Which sectors face a high exposure to direct or indirect ETS induced CO₂ costs?**
- **Which sectors face a high exposure to international competition?**
- **Potentially affected sectors in Germany**

Source: Statistisches Bundesamt/Öko-Institut

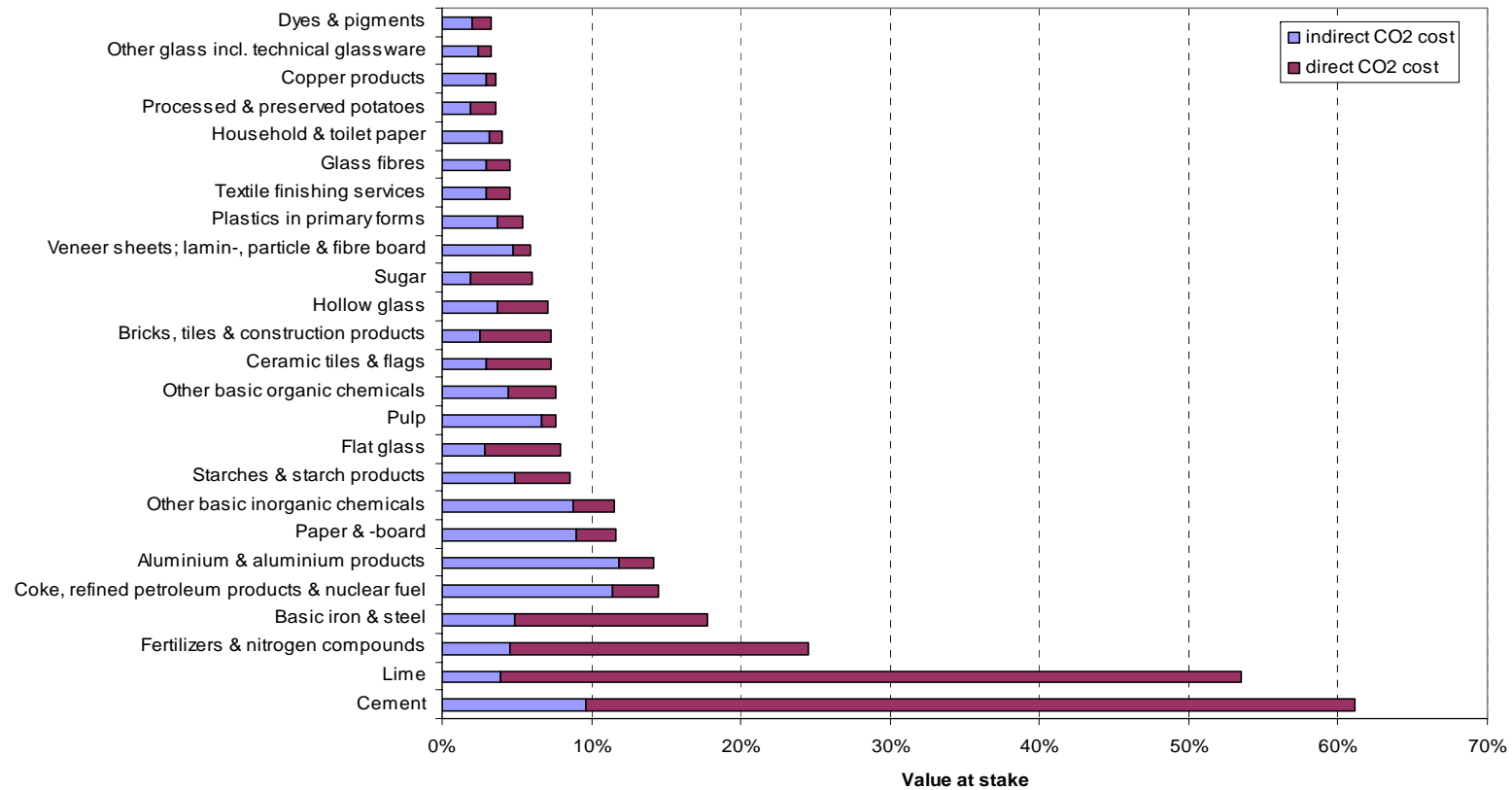


Criterion I: CO₂ induced costs

- **Concept: “value at stake”**
- **Definition:**
 - max. value at stake = $\frac{\text{potential direct} + \text{potential indirect costs}}{\text{gross value added (GVA) of sector}}$
- **Direct costs:**
 - EU allowance price of 20 €/t CO₂ assumed
- **Indirect costs:**
 - CO₂ costs of power plant operating at the margin
 - D: hard coal power plant (19.34 €/MWh)
- **25 sectors identified with relevant CO₂ induced costs**
 - (2% indirect or 4% cumulated cost increase)



German sectors with high CO₂ costs (direct and indirect)





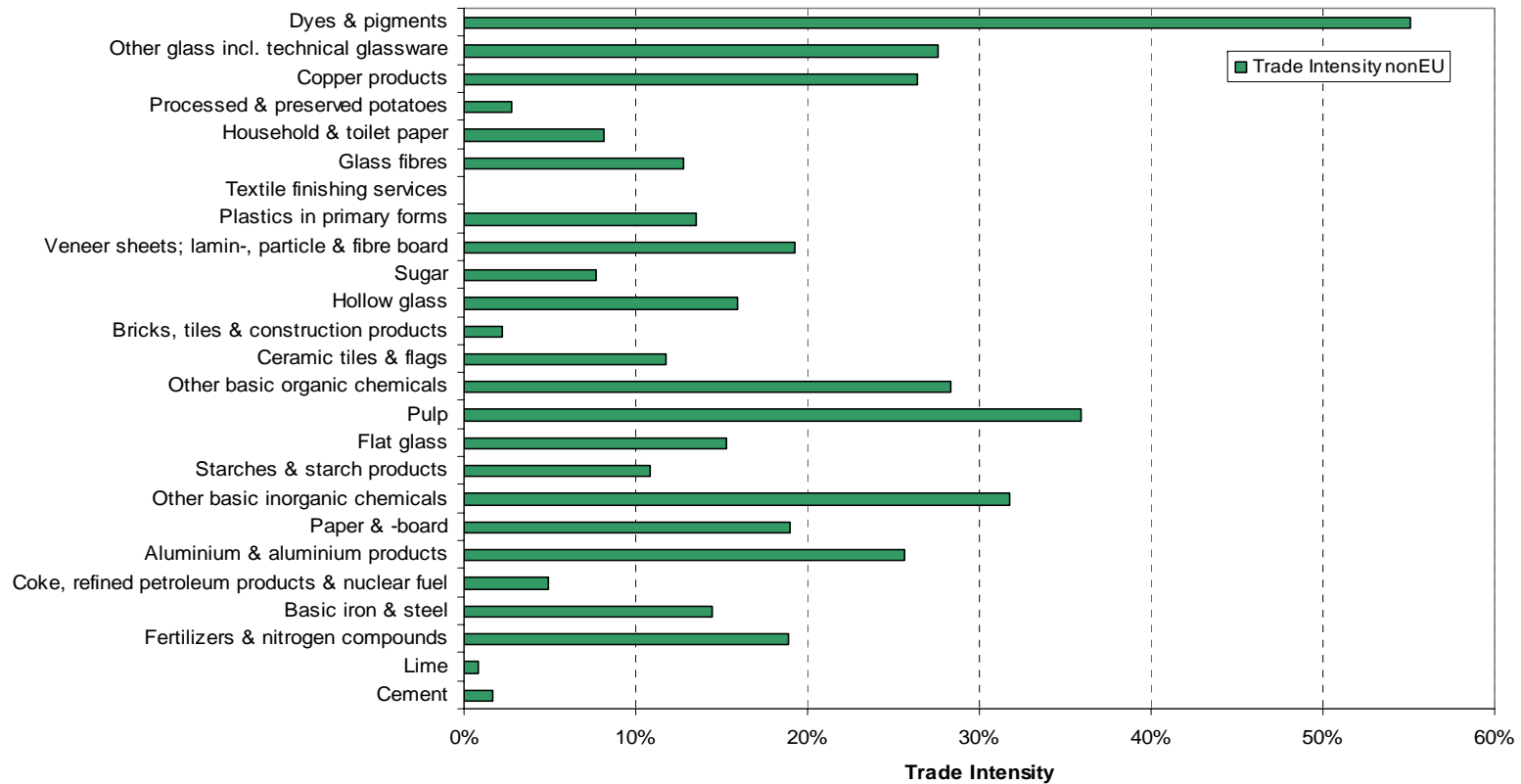
Criterion II: trade exposure

- **Risk of carbon leakage caused by potential price increase depends on possibility to pass through costs**
- **Indicator: trade intensity of German sectors with non-EU**
- **Definition:**

$$\text{trade intensity} = \frac{(\text{exports to non-EU} + \text{imports from non-EU})}{(\text{annual turnover} + \text{total imports})}$$

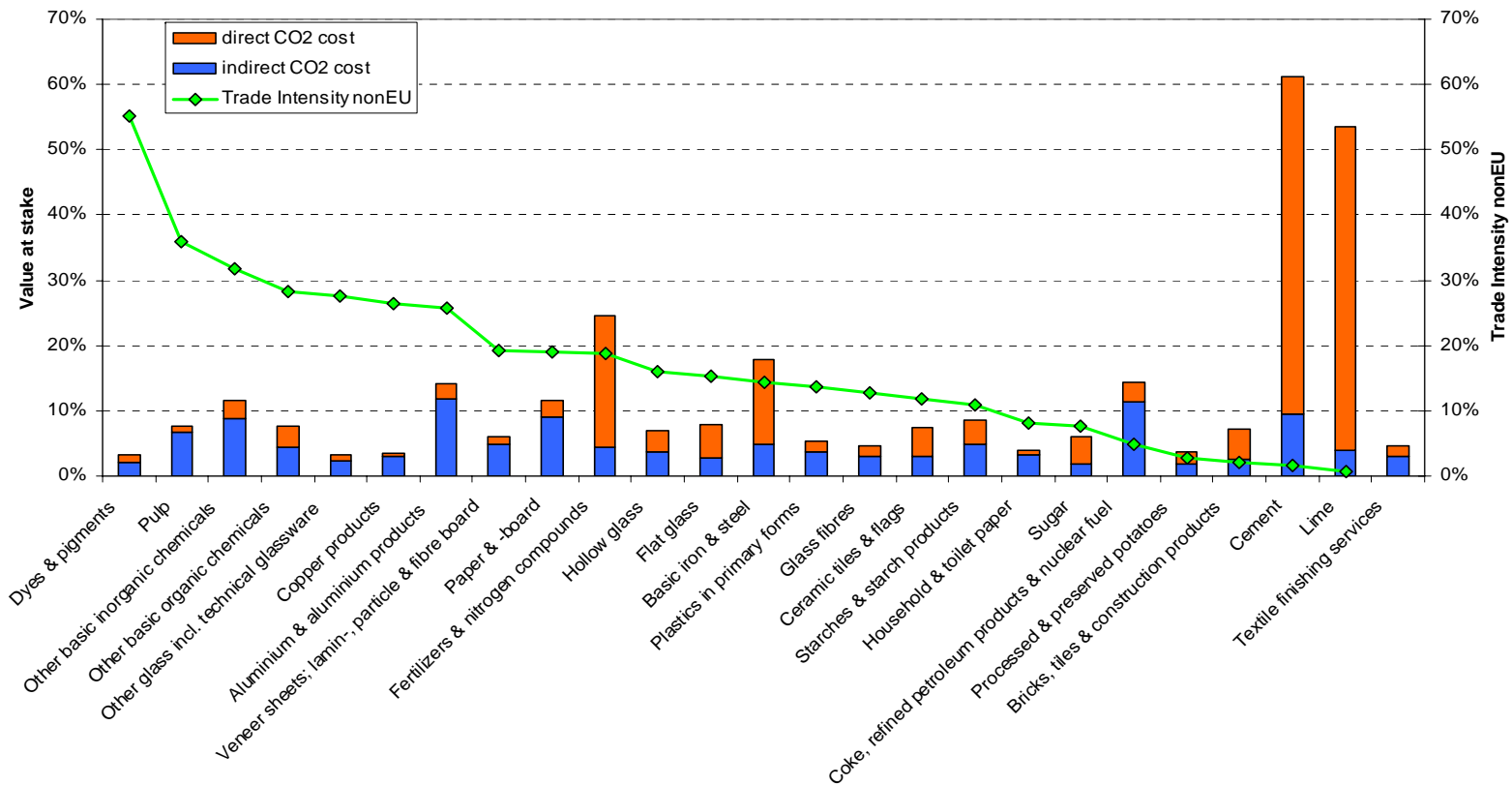


Non-EU trade intensity of German sectors with high CO₂ costs





Combining both criteria





Trade exposed sectors show differences between direct and indirect costs

- **sectors with high direct costs:**
 - basic iron and steel
 - fertilizers and nitrogen compounds
- **sectors with high indirect costs:**
 - aluminium and aluminium products
 - paper and paperboard
 - other basic inorganic chemicals



Limitations of the Approach

- **Indicator- and sector-based approach cannot adequately address carbon leakage on individual installation level**
- **Intra-sectoral individual exposure to carbon leakage differs substantially dependent e. g. on produced goods**



What is needed?

- **Carbon leakage must be addressed in the EU ETS**
- **Manageable approach is needed:**
 - **measures only if significant risk of carbon leakage**
 - **consensus on adequate criteria necessary**
- **EU-wide analysis necessary**
 - **Industry should provide sector data**



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Thank you for your attention!

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