

# Impacts of the EU ETS on the industrial competitiveness in Germany

Ad hoc meeting of the  
ECCP working group on emissions trading on carbon leakage

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## Disclaimer

- **The analysis presented in this paper was commissioned by the German Federal Environment Agency under a framework contract on analytical support for the revision process of the EU ETS.**
- **The contents of this paper does not necessarily reflect any German official position.**
- **The issues raised in this paper are subject to further analysis under the framework contract mentioned above.**

## Main starting points and research questions

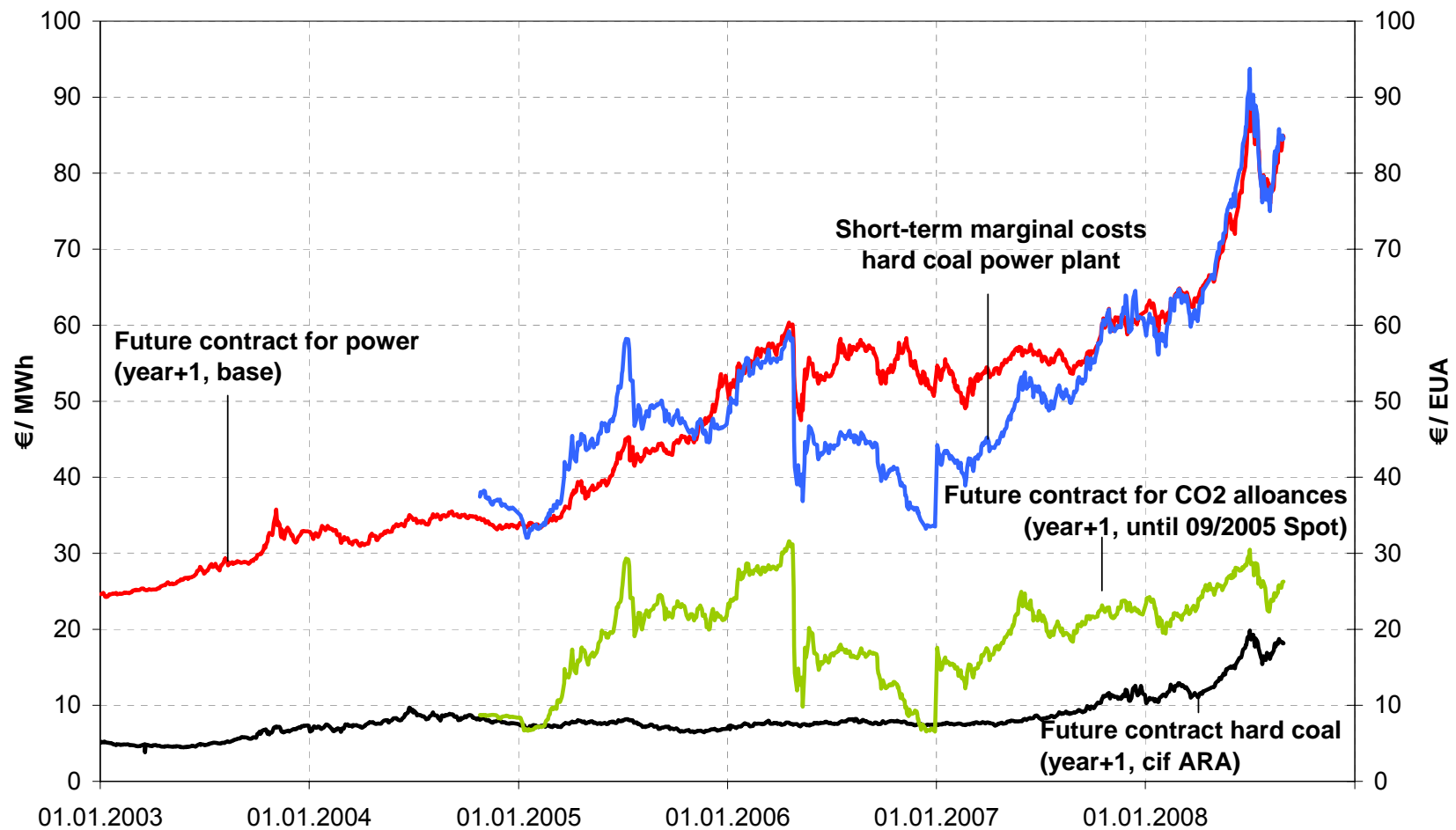
- **Which sectors in Germany may face significant increases in direct or indirect costs because of the EU ETS?**
  - How do the results compare with analysis on other countries?
- **Which sectors are likely to face a high exposure to international competition which could then lead to carbon leakage?**
  - What could be key criteria?
  - Not (yet) raised: What would be the results for other Member States or the EU-27 as a whole?
- **Which effective mechanisms exist to address competitiveness/leakage concerns arising in the context of the EU ETS?**
- **Starting point of the quantitative analysis**
  - Top down analysis at NACE 4 digit level
  - Complementary analysis

# Assessment of direct and indirect costs of CO<sub>2</sub>

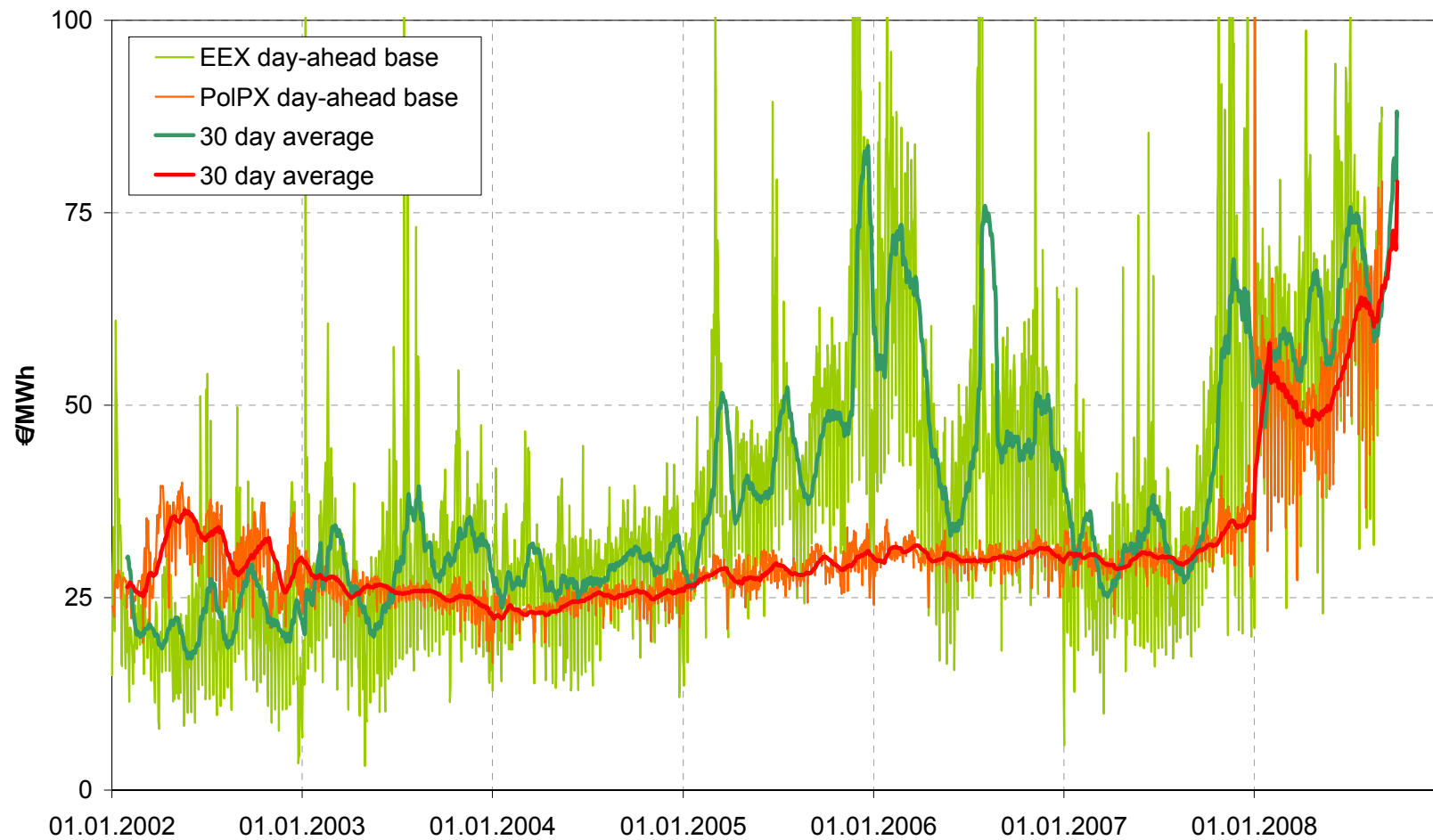
- **Direct costs**
  - CO<sub>2</sub> x EUA price x FAR (Free Allocation Rate)
  - Should be comparable for comparable processes within the EU-27 (at comparable FAR)
- **Indirect costs**
  - Electricity consumption x EUA price x PTR (Pass-through Rate)
  - Will be different for comparable processes within the different regional power Markets of the EU-27
- **Indicator: Value at stake**
  - (indirect and direct) CO<sub>2</sub> costs divided by gross value added (at factor costs)
  - however, profit neutrality assumption is not necessarily an indicator for leakage

# German power market (2003-2008)

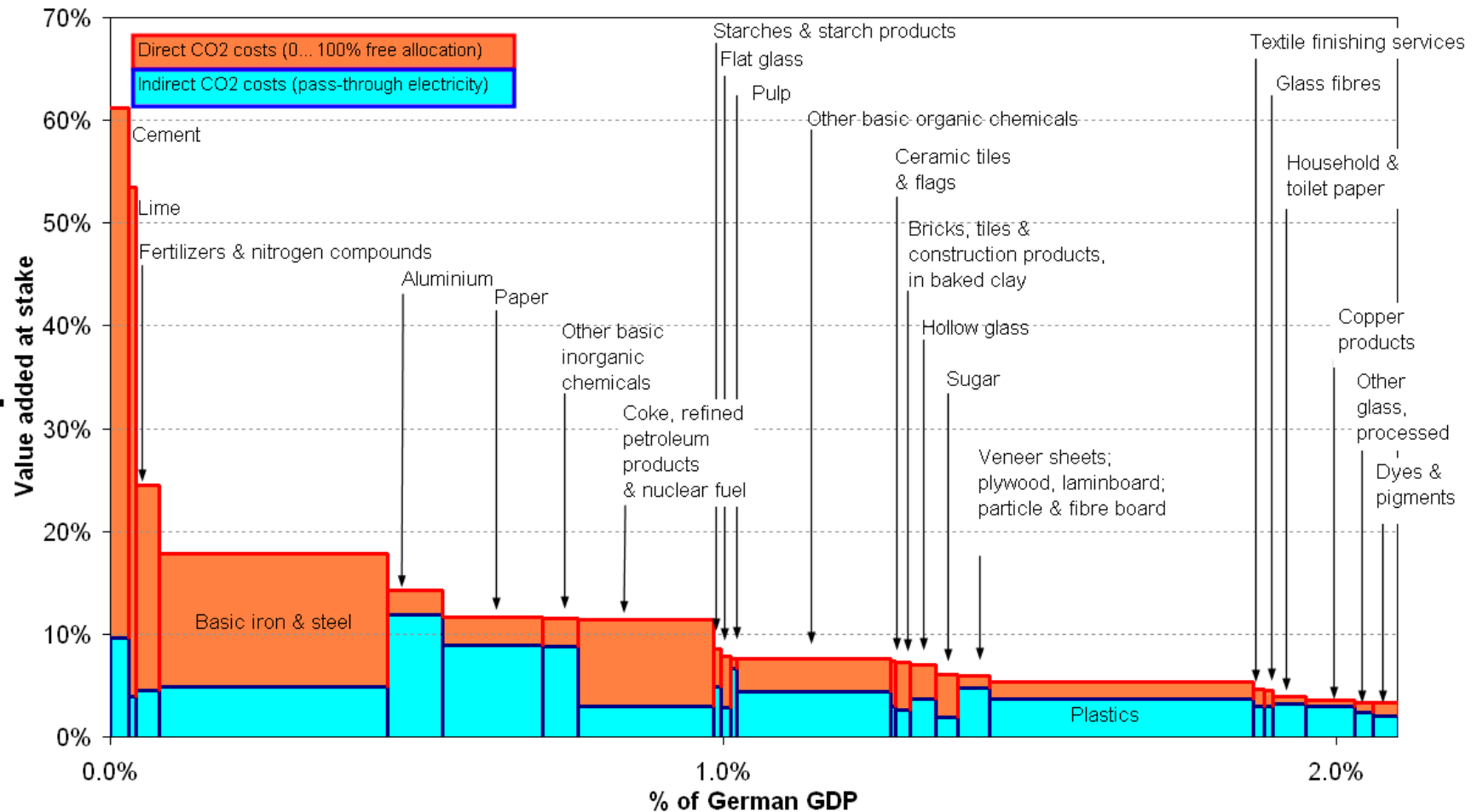
## Marginal generation sets the price (100% PTR)



# Same wholesale power prices DE & PL ... ... but not in all Europe (& all sectors)

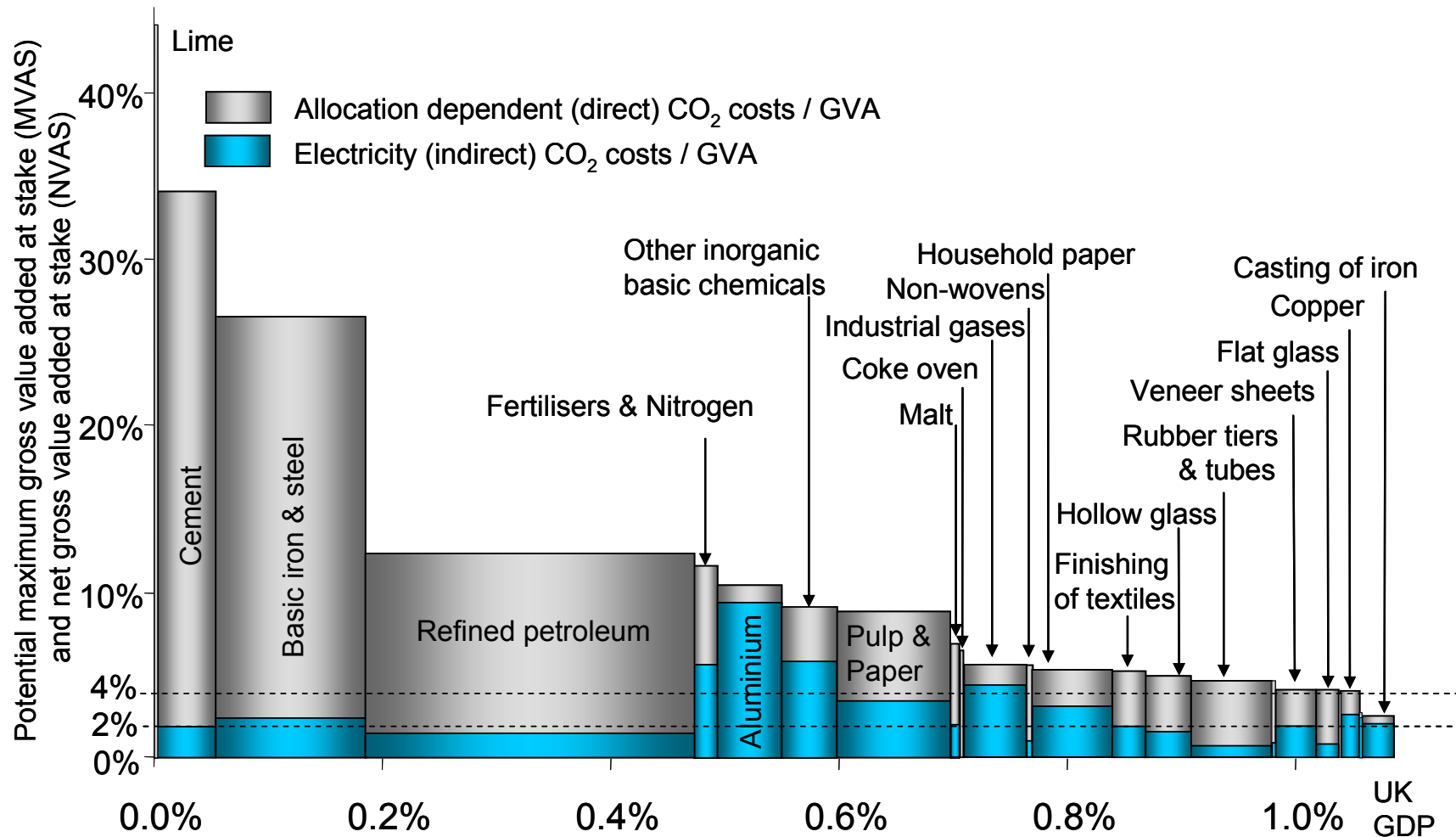


# Sectors with significant exposure to CO2 costs in Germany



# Comparison to a similar analysis for the UK

## - no significant differences



Price increase assumption: CO<sub>2</sub> = €20/t CO<sub>2</sub>, Electricity = €10/MWh

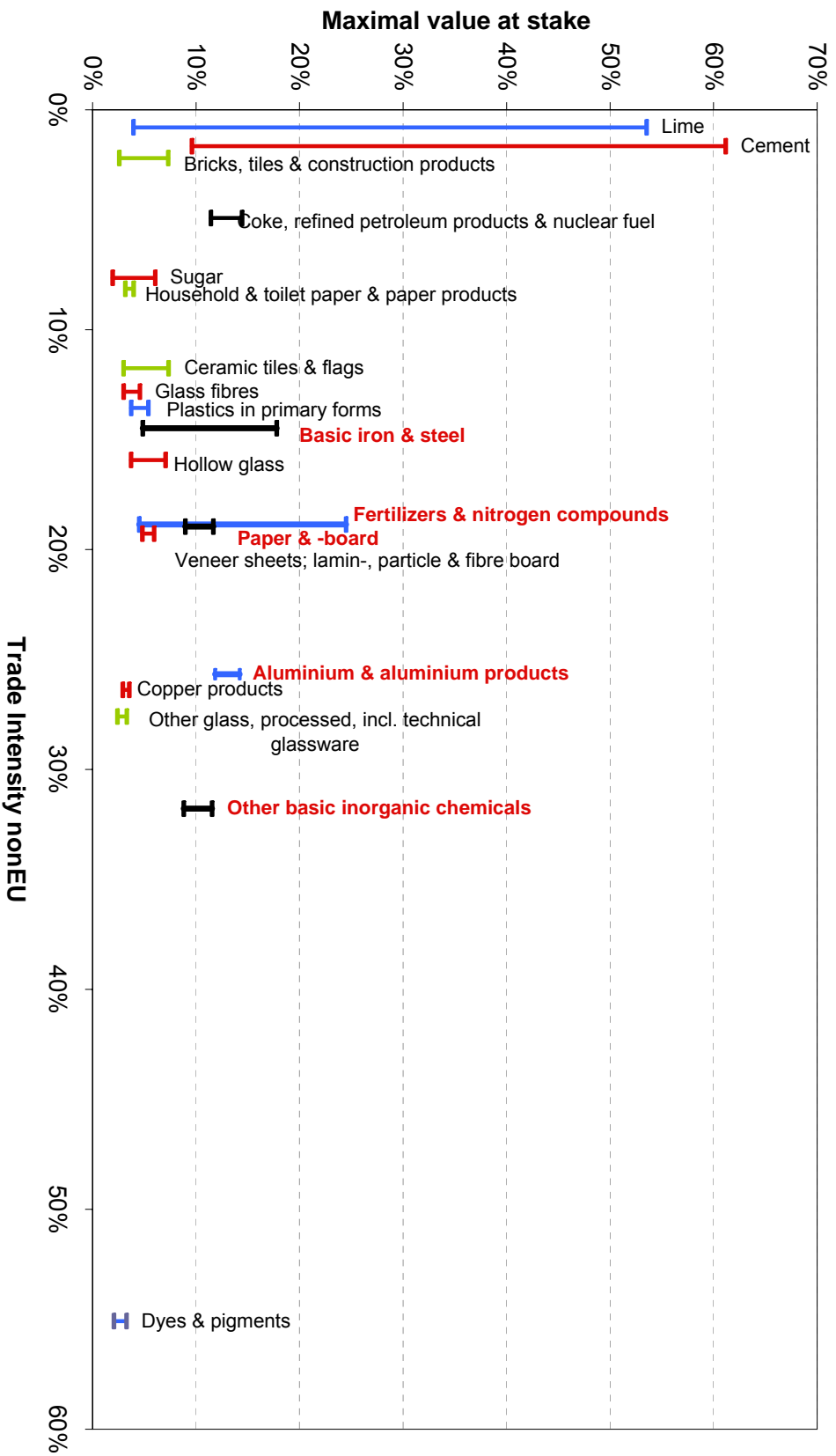


# Exposure to carbon leakage

## Other factors matter

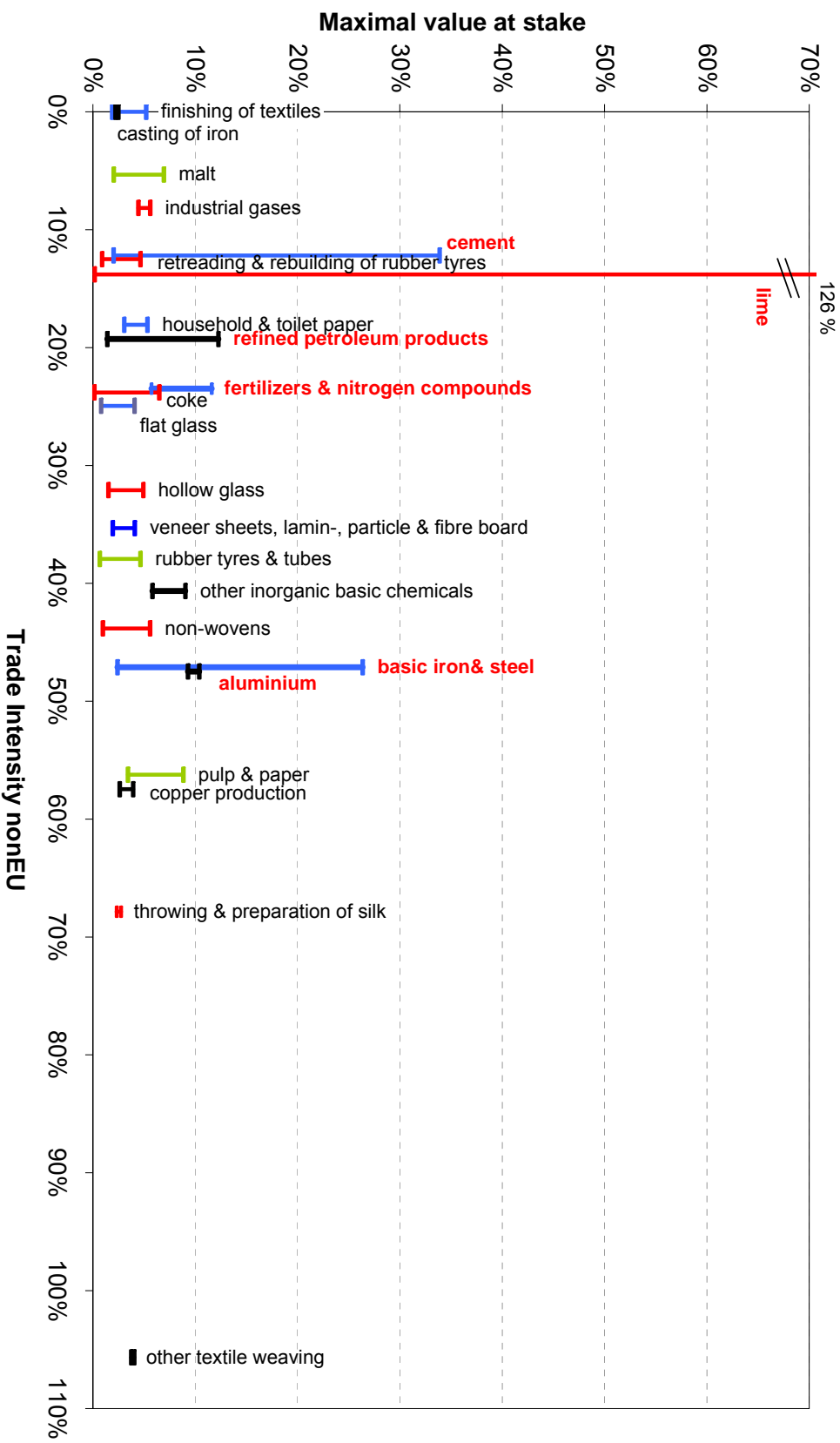
- **Analysis of different concepts**
  - Price elasticities
    - wide range of ‘guesstimates’ for low aggregated data
    - do not reflect the potential loss of market shares for domestic producers
    - not suitable for very sector-specific assessments
  - Armington elasticities (substitution of commodities produced in different countries)
    - huge range of ‘guesstimates’ for low aggregated data
    - major differences for short- and long-term
    - not suitable for very sector-specific assessments
  - Exposure to international competition (OECD, non-EU trade)
    - export orientation & import penetration of domestic market
  - Trade intensity (non-EU trade)
    - Exports and imports related to turnover and imports

# Sectors with significant exposure to CO2 costs in Germany



# Comparison to a similar analysis for the UK

## - only some differences



# Exposure to carbon leakage

## Preliminary results (1)

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- **Only some NACE 4 digit-level sectors exceed the 10%/10% threshold in Germany**
  - basic iron and steel
  - fertilizers and nitrogen compounds
  - aluminium and aluminium products
  - paper and paperboard
  - other basic inorganic compounds
- **Additional sectors in UK**
  - lime
  - cement
  - refined petroleum products
- **And in other countries?**
  - further research: trade intensity tool under development

# Exposure to carbon leakage

## Preliminary results (2)

- **CO<sub>2</sub>-cost exposure and trade intensities are robust indicators for concerns on CO<sub>2</sub>-exposure**
  - For what regional scope these indicators should be applied?
- **Are these sufficient indicators? Useful complementary indicators could be**
  - market structure (including: non-EU ≠ non-EU ETS)
  - price differences within the EU (pass-through ability)
  - transport costs
  - growth patterns
  - investment intensities (operational/investment leakage)
- **CO<sub>2</sub> exposure could significantly result from indirect CO<sub>2</sub> costs**
- **CO<sub>2</sub> exposure could have significant regional patterns**
  - trade exposure
  - effective indirect costs (considering also power market reality!!!)

# Screening the options to deal with potential CO2 leakage effects

- **Free allocation**
  - Will have a price (in terms of economic efficiency)
  - Will not avoid potential carbon leakage – without updating provisions (direct, indirect, effective plant closure provisions)
  - Is questionable with regard to indirect CO2 costs
  - Raises the issue of appropriate benchmark schemes
  - Is difficult to adjust to an changing regulatory environment
- **Border adjustments**
  - Are politically difficult
- **Direct compensation**
  - Is worth to be analyzed in more detail further – for investment leakage
- **Sectoral agreements**
  - Effect on leakage questionable in the real world (although it is an interesting issue for the international regime)

**Thank you  
very much**

**Download of the paper:**

**<http://www.umweltdaten.de/publikationen/fpdf-l/3625.pdf>**

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