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Competitiveness: Concepts, Concerns, and Policy Responses

Exploring Market-Based Approaches to Low Carbon Development
in the State of Rio de Janeiro

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Overview

- ▶ Competitiveness and Carbon Pricing
- ▶ Competitiveness Concerns: Theory and Case Studies
- ▶ Policy Options to Address Competitiveness Impacts



Carbon Pricing and Competitiveness

- ▶ A price on carbon can increase the **cost of economic activity** for covered emitters, impacting their productivity and – under certain circumstances – their **competitiveness**
- ▶ But competitiveness is a complex metric: a price on carbon can spur **innovation** in low-carbon sectors, potentially increasing aggregate competitiveness in the economy
- ▶ Cost increases affect emitters **directly** through the price of carbon and **indirectly** through rising energy costs

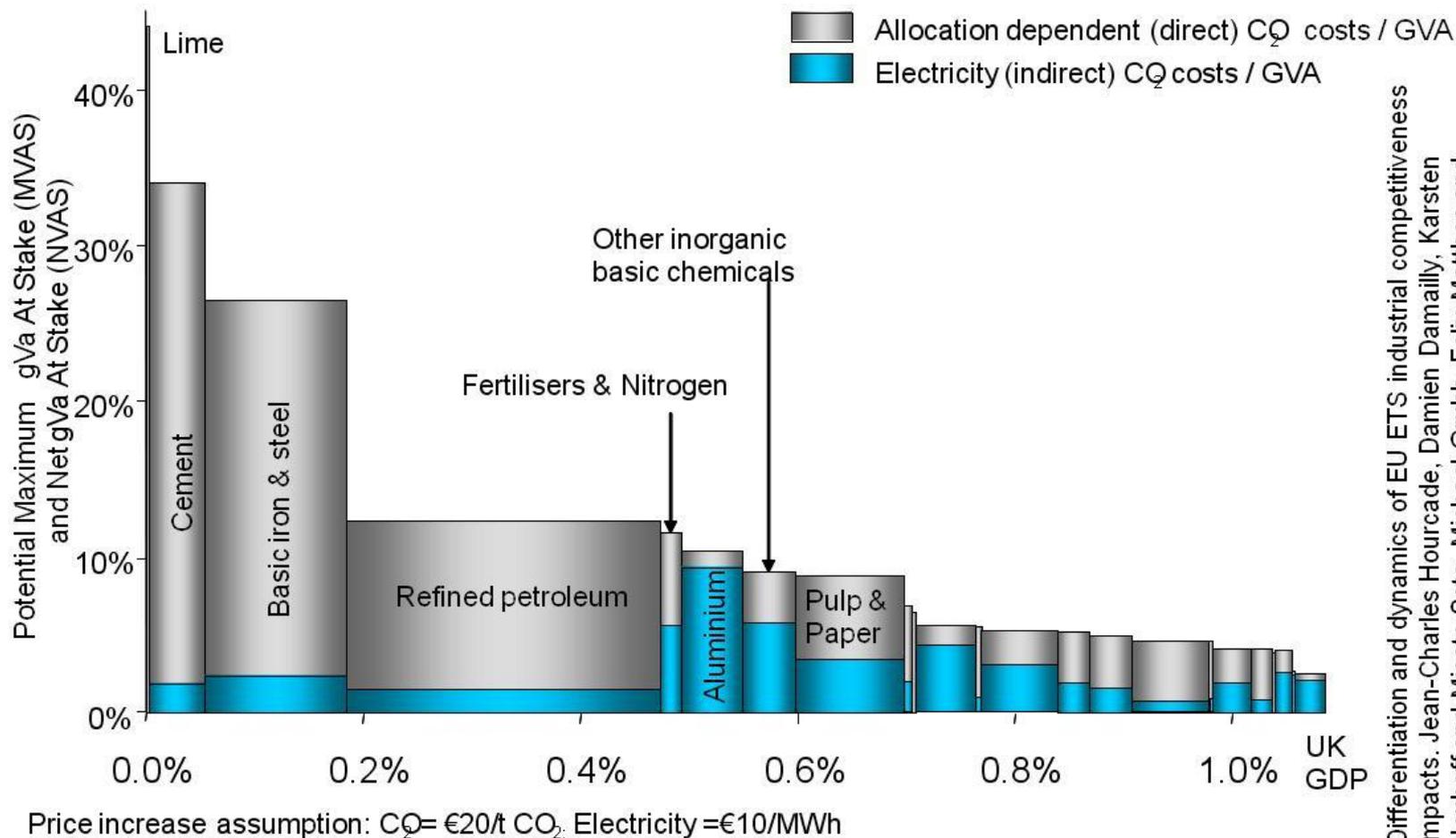


Competitiveness Concerns: An Overview

- ▶ Risk of **falling production levels** or **industry relocation** in response to carbon pricing can be a major political concern, as it can distort competition and threaten jobs and profits
- ▶ Not only an economic problem: relocation of production and investment to regions without a carbon price and rising use of energy and resources constitute emissions **leakage**
- ▶ Important to distinguish such impacts from broader **technology** and **production trends**



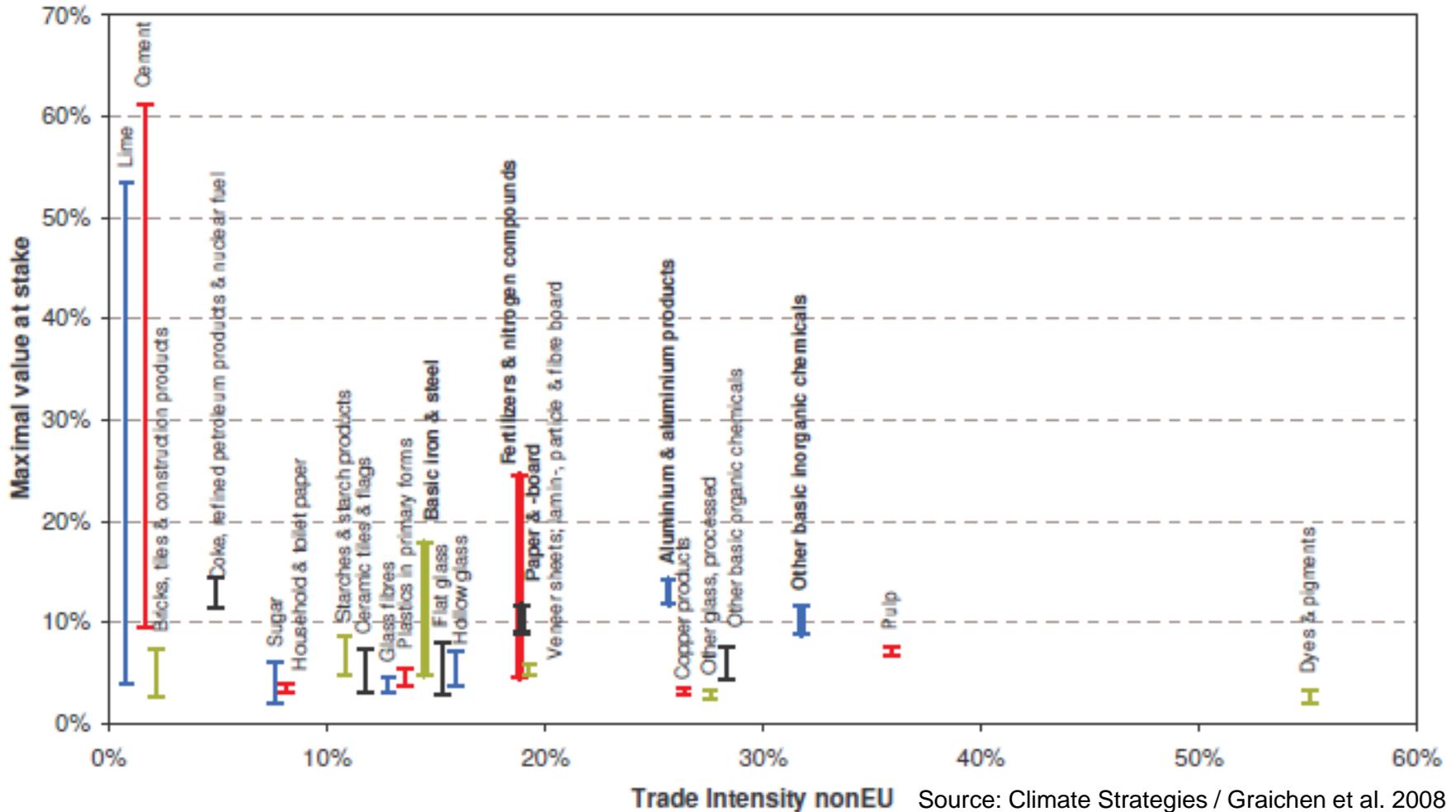
Gross Value Added at Stake vs. Share of GDP: United Kingdom



Differentiation and dynamics of EU ETS industrial competitiveness impacts. Jean-Charles Hourcade, Damien Damailly, Karsten Neuhoff and Misato Sato, Michael Grubb, Felix Matthes and Verena Graichen



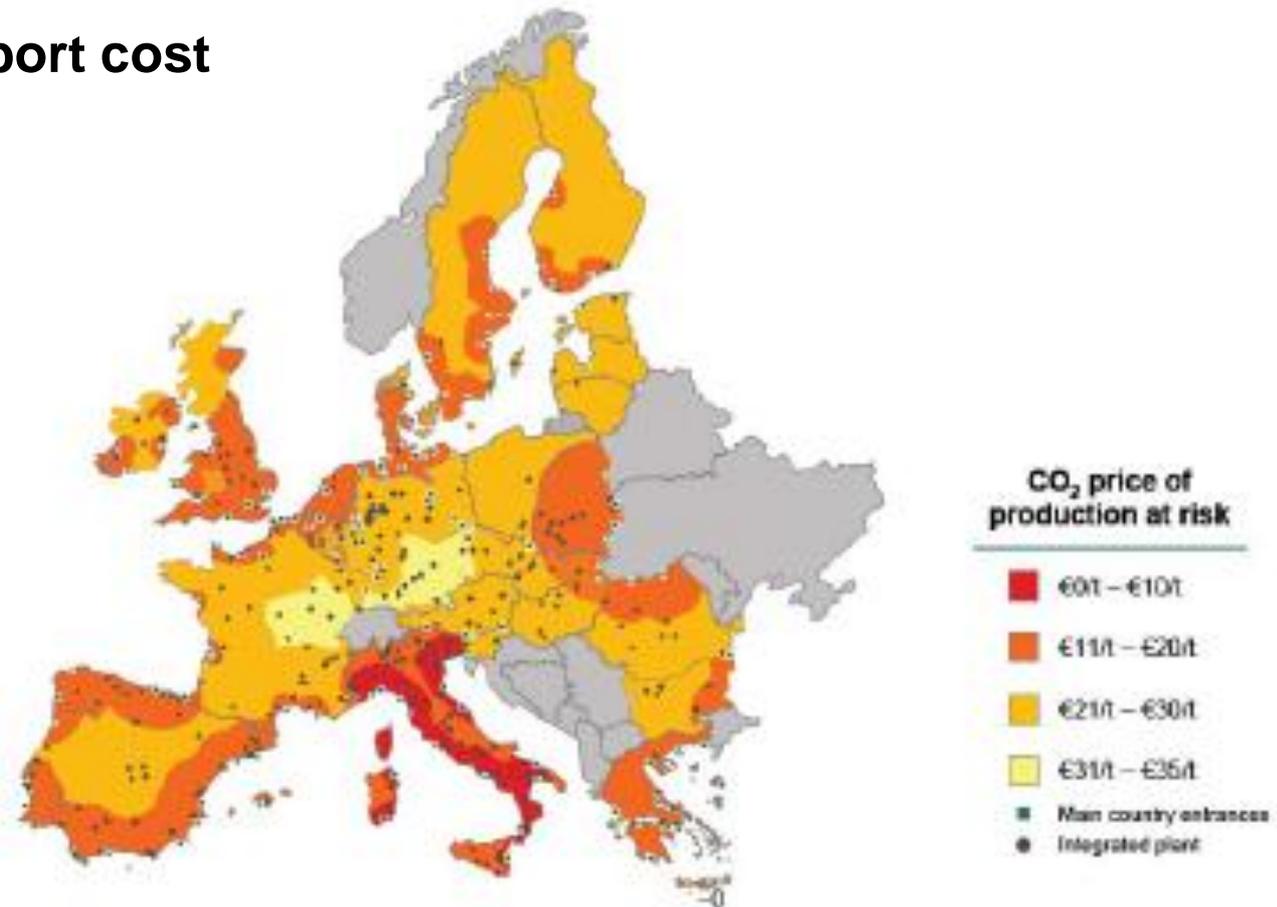
Maximal Value at Stake vs. Trade Intensity: Germany





Economic Barriers to Carbon Leakage: Cement

Barrier: transport cost

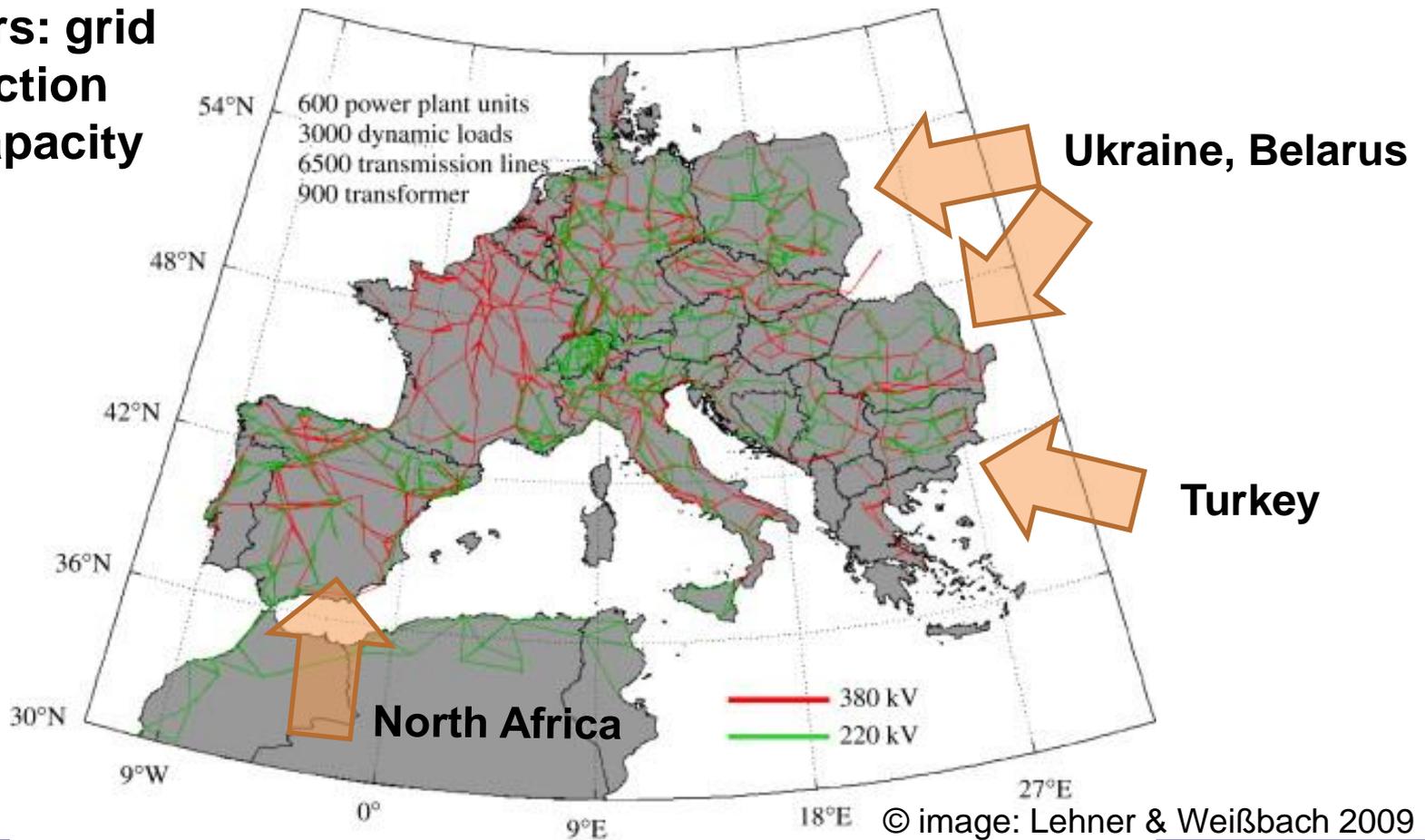


Source: BCG / Cembureau 2008



Economic Barriers to Carbon Leakage: Electricity

Barriers: grid connection and capacity





Policy Options to Address Competitiveness Impacts

Policy responses to address competitiveness aim at **levelling the playing field**: reduce the impact of carbon pricing on domestic producers, create a burden on foreign producers, or achieve convergence through cooperation

- ▶ Subsidies and price or supply management
- ▶ Preferential allocation rules for affected domestic producers
- ▶ Adjustments at the border: tariffs and equivalent burdens or rebates
- ▶ Convergence of mitigation efforts through global or sectoral agreements or convergence of carbon prices through linking of trading systems



Thank You!

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Price and Supply Management (Cost Containment)

Carbon price or allowance supply are *flexible* or *actively managed* to stabilize price or counteract increase beyond unwanted levels

- ▶ Entity- or system-level banking of allowances
Entity- or system-level borrowing of allowances
Multi-year compliance periods
- ▶ Offsets (e.g. declining restrictions on quantity/quality/origin)
- ▶ Various options for a hard or soft price ceiling (“Safety Valve”):
Compliance fee or (un)limited supply of allowances at set prices



Preferential Allocation for Affected Domestic Producers (I)

Allowances are allocated free of cost on an ex-ante basis:

- ▶ Based on historical emissions or a benchmark
- ▶ Has no direct impacts on trade and other countries
- ▶ Considered effective in preventing leakage
- ▶ However: free allocation can result in windfall profits, closure rules can become production subsidy



Preferential Allocation for Affected Domestic Producers (II)

Allowances are allocated free of cost on an ex-post basis

(also known as “output-based rebates”)

- ▶ Operator receives additional allowances for each additional unit produced, usually based on a benchmark (e.g. sector average)
- ▶ It eliminates the option of switching away from energy-intensive products, which would result in lower production of these goods
- ▶ Weakens the signal from the carbon price and puts at risk the absolute cap



Adjusting a Price Differential at the Border (I)

Imports of energy-intensive products from countries with higher carbon intensity and lower mitigation standards can be penalised by applying:

- ▶ an import tariff on the imports (alternately: export rebates)
- ▶ a mandatory allowance purchase requirement
- ▶ an embedded carbon standard

Drawbacks of border adjustments:

- ▶ potential conflict with international law (GATT, UNFCCC)
- ▶ Increased cost of imported inputs for domestic manufacturers
- ▶ High administrative burden and practical challenge of calculating carbon content of imported products



Adjusting a Price Differential at the Border (II)

► Possible Challenges under GATT

– National Treatment, Article III.2 GATT

product-related measures (“nexus”, *US Superfund*)

“like products” doctrine (*EC Asbestos, Tuna/Dolphin*)

comparability assessment and adjustment calculation

– Most Favoured Nation, Article I.1 GATT

► Exemption under Article XX b and g GATT

Necessary to protect human, animal or plant life and health or to conserve exhaustible natural resources; may not be applied “in a manner which would constitute a means of arbitrary or unjustifiable discrimination ... or a disguised restriction on international trade.”



Achieve Price Convergence through Cooperation

- ▶ Promote negotiation of an international (e.g. sectoral) agreement on climate change mitigation, if needed by leveraging the threat of border adjustments
- ▶ Introduce restrictions e.g. on use of CDM credits generated in third countries in energy-intensive industries or apply a multiplier (e.g. 2CERs/tCO₂eq)
- ▶ Link emissions trading systems to levelize carbon prices



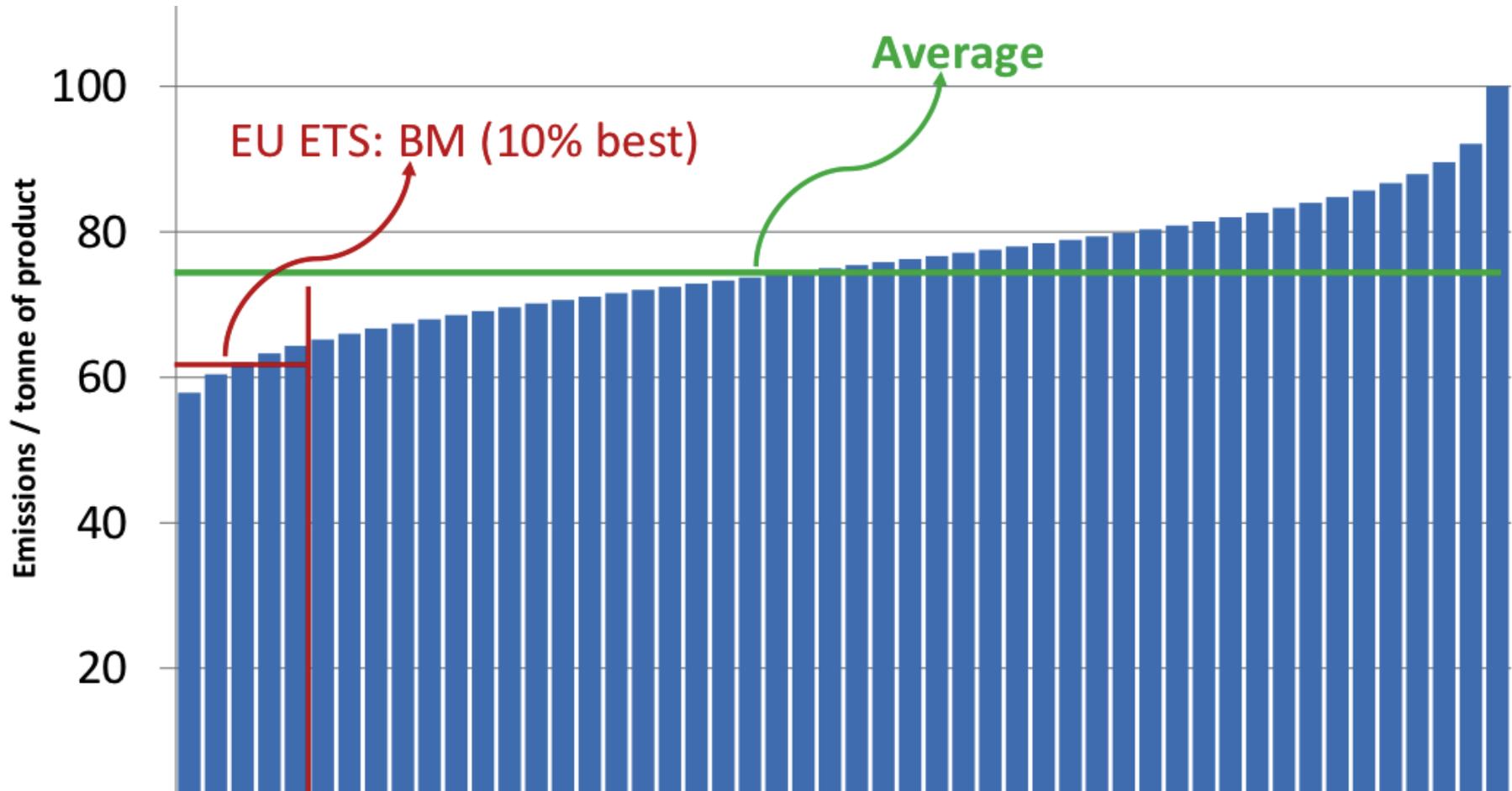
The EU Approach to Tackling Carbon Leakage (I)

100% of allowances are allocated free on an ex-ante basis:

- ▶ 52 product benchmarks based on industry discussions
- ▶ Generally: “One Product – One Benchmark”
- ▶ Average performance of 10 % most efficient installations in a (sub-)sector (Benchmark curves)
- ▶ Based on emission intensity data for 2007/2008 collected by European industry associations under Commission guidance, verified by third parties and checked by the Commission



The EU Approach to Tackling Carbon Leakage (II)





The EU Approach to Tackling Carbon Leakage (III)

Allocation formula $A = Bm_e \times P[\times \alpha_{cap}]$

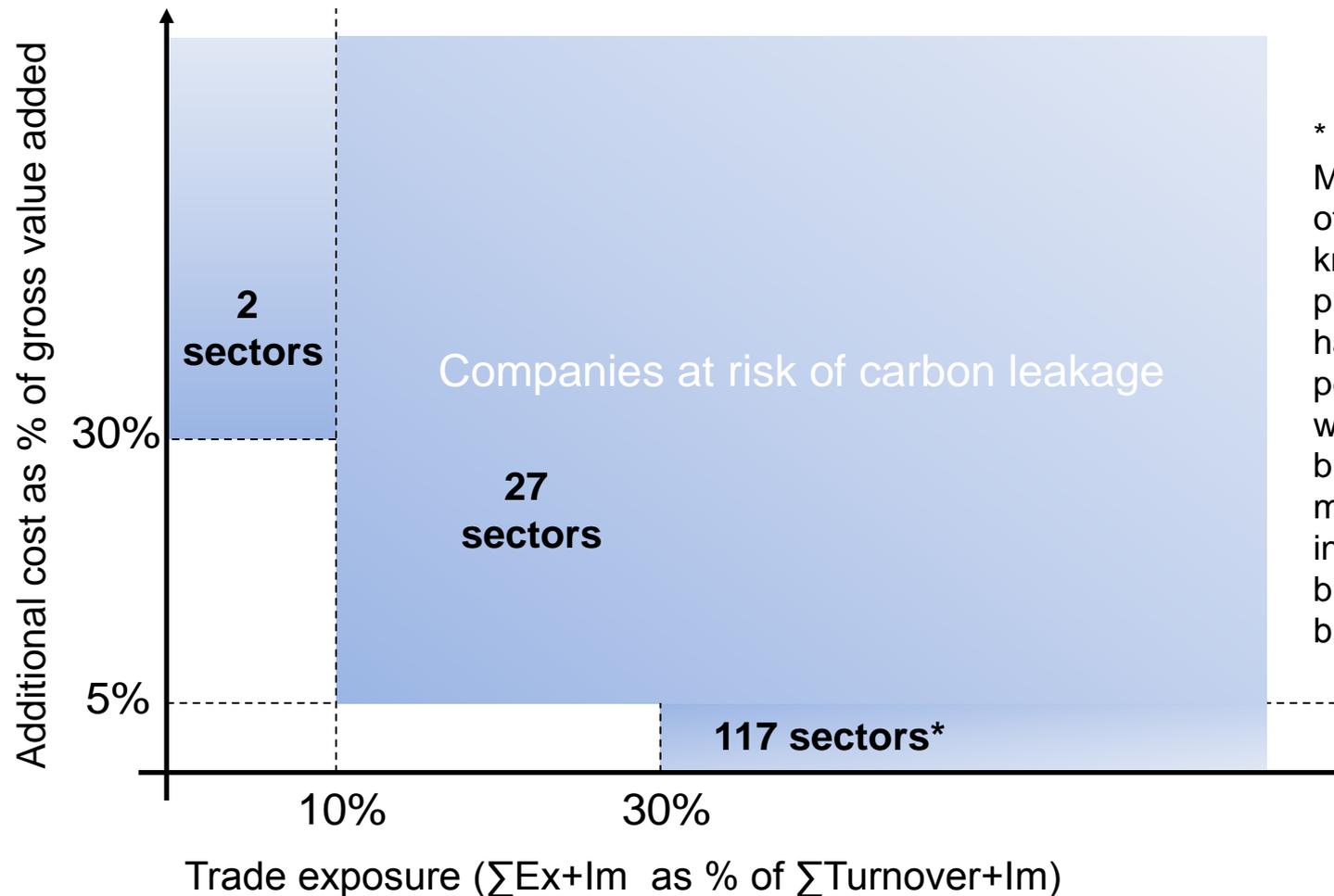
- ▶ A: free allocation [EUA]
- ▶ Bm_e : emission benchmark [t CO₂/t product]
- ▶ P: historic production
- ▶ α_{cap} : adjustment factor to adjust allocation to the cap

Determining trade exposure and leakage risk:

- ▶ 5% cost increase and 10% trade exposure
- ▶ 30% for one of the two



The EU Approach to Tackling Carbon Leakage (IV)



* including:
Manufacture of wine, knitted pullovers, handbags, perfumes, watches, bicycles, musical instruments, brooms and brushes ...



The EU Approach to Tackling Carbon Leakage (V)

- ▶ Definition of leakage rules was subject to substantial lobbying, resulting in an excessively large group of industries obtaining free allocation
- ▶ Early evidence shows affected industries largely able to pass through 100% or more of carbon cost, threatening new windfall profits
- ▶ Still, exposed sectors do not receive allocation according to their emissions, but 100% of the benchmark allocation until 2020
- ▶ List revised continuously – also depending on what happens abroad
- ▶ Compensation for indirect leakage, i.e. leakage risk because of higher power prices, still subject to discussion