



The EU ETS and Carbon Leakage: Addressing a Multilateral Challenge

Climate Strategies Side Event

Presenter: Susanne Droege

SB 28 Bonn: Thursday, 12 June 2008, 18:00 - 20:00, MoE, WIND

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SB 28 Side Event
12 June
2008

Overview

- The Issue: Carbon Leakage and the EU ETS after 2012
- The Measures to Address Carbon Leakage
- The Focus of the Climate Strategies Project

Carbon Leakage

- Climate policy challenge: undermines effectiveness
- Territorial approach
- Defined as the change in GHG emissions outside the country or region taking domestic mitigation action divided by the reduction in the emissions of the country or region (e.g. Barker et al. 2007: 6281)

Leakage rate: $-\Delta \text{ GHG in NA} / \text{GHG reduction in A}$

- Meaning: 30 percent leakage out of 100 units avoided emissions under the EU ETS would limit the actual contribution of the EU ETS to the global emissions reductions to 70 units.

The EU ETS Directive Proposal: after 2012

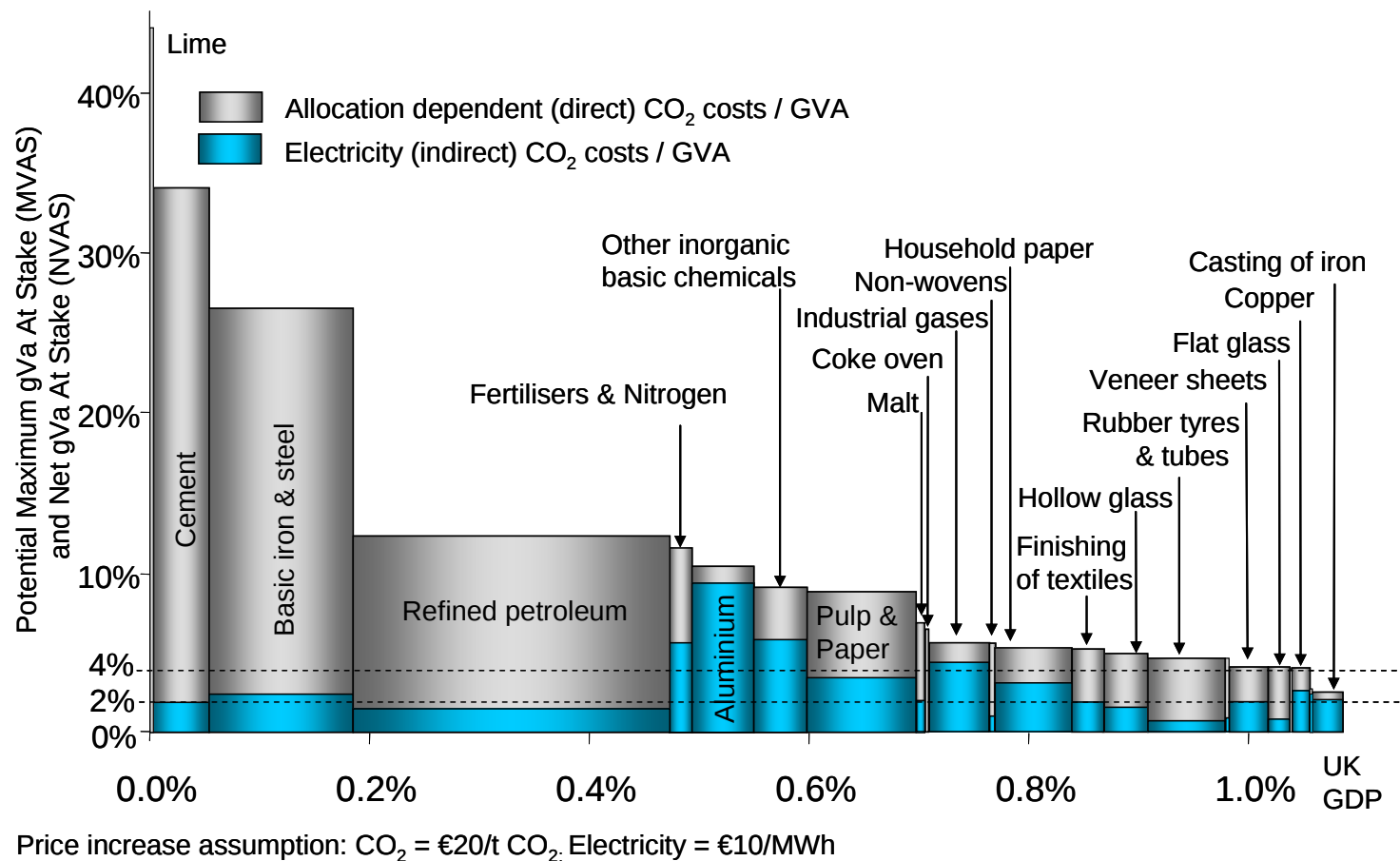
- Preferred long term option: full **auctioning**, less certificates
- **Free allocation** during a transitional period (Art 10a) until 2020
- Harmonised EU-wide rules
- Postponed decision for installations in **energy-intensive sectors** exposed to international competition. Taking into account progress in reaching an international agreement to avoid net carbon leakage
 - 2010: Commission will determine which sectors are concerned
 - 2011: in-depth assessment of energy-intensive industries qualifying for free allocation
- The challenge: *putting in place an effective carbon equalisation system to neutralise any distorting effects from imports and to prevent carbon-intensive production to move abroad*

Energy-intensive Industries

- **Definition:** Energy-intensive industries are defined as business entities where the purchase of energy products and electricity amounts to at least 3.0% of the production value
- **50 sub-sectors** might require price increases for their products ranging from 0.1 to 5% to recoup costs imposed by an carbon price of **€20** per tonne of CO₂:
 - cement and lime production, - primary steel (blast oxygen furnace), - aluminium production, - production of primary container glass and - some basic chemicals (ammonia, nitric acid, fertilizer production)[DG Economic and Financial Affairs Economic Paper no° 297, 2007]

CO₂ cost screen (with €20/t): Sectors potentially exposed to unilateral CO₂ pricing (UK)

The Issue



Source: Climate Strategies Report:
Differentiation and dynamics of EU ETS industrial competitiveness impacts. 2007.

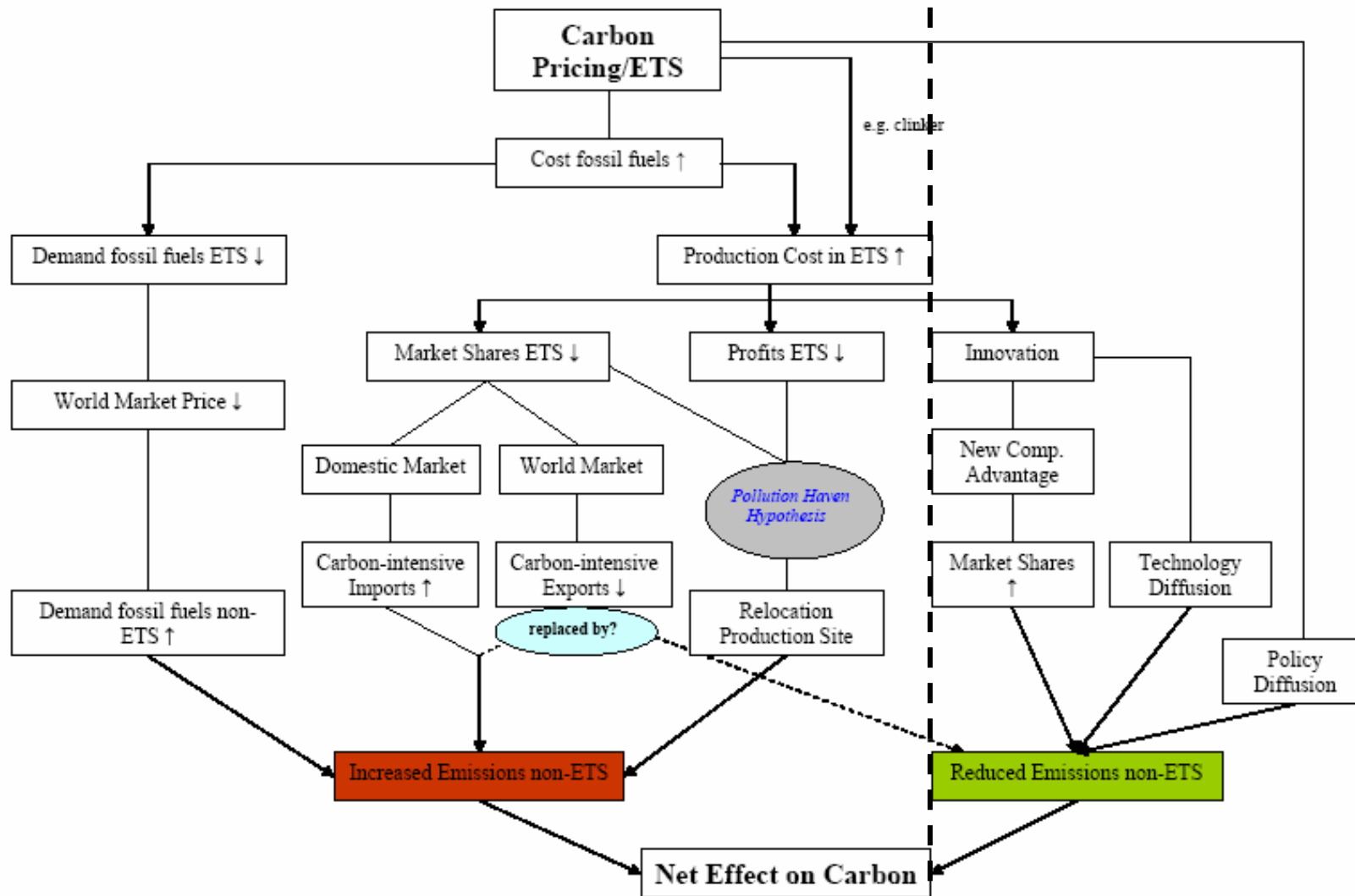
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From Competitiveness to Carbon Leakage

- Competitiveness effects determined by **profits** and **market shares** of producers → Concern for industrial policy
- Translate into **investment** and **production** decisions under carbon pricing
Leakage determined by:
 - A) **Relocation** potential
 - B) **Substitution** of production through imports
 - C) **Other channels**. Could be of significance (energy markets, substitution elasticities) → unintended feedback loops

Leakage Channels Induced by Unilateral Carbon Pricing



Effects from the EU ETS on Location of Emissions: Investment Relocation

- Switch **capital investment** from within to outside Europe
- Relevant now, if expectations of *significant sustained differential* in regional carbon prices
- Few new *greenfield* investment in EU manufacturing, bigger issue is upgrading investment
- But: set of factors drive location decisions
- ‘Invest abroad for import to EU’ might not pay if carbon price equalises

Effects from the EU ETS on Location of Emissions: Production Leakage

- Decision to reduce output from facility within the EU, and **replace it by imports**
- Relevant in 'real time', i.e. for Phase III design decisions
- Contingent upon adequate capacity and infrastructure to facilitate imports
- Risk? Confined to impact on customer networks in the industries

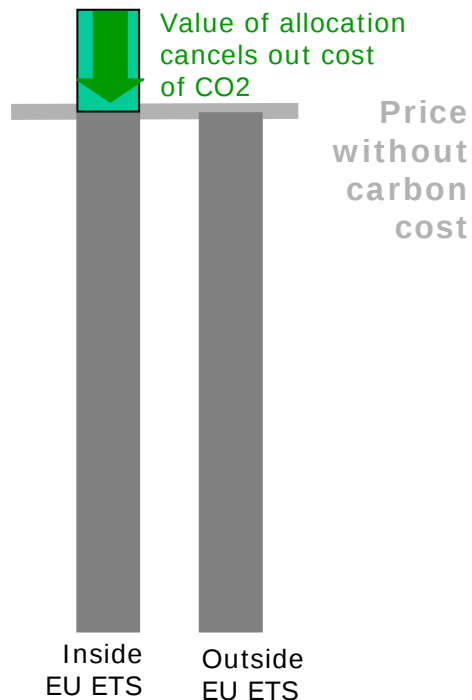
Inside the EU: Identification of Sectors „significantly at risk“ (Art 10a, 10b)

- How big is ‘significant’?
 - Do criteria apply only at EU aggregate level and conditions, or for different EU member countries? Different dependencies (e.g. power sources)? Different facilities (e.g. geographical location) ?
 - At what carbon prices?
 - at €20/tCO₂, list confined to top 2-4 sectors, but might expand rapidly at much higher carbon prices
- **difficult and contentious task, prone to political judgements on definitions and boundaries**

Three Options to Level the Carbon Price 1. downwards

The Measures

Levelise at
non-carbon costs
**Conditional allocation /
revenue recycling**



- Little substitution to low carbon products/services
- Distorts investment
- May constrain innovation
- Risk of lock-in

→ free allocation or revenue recycling
can prevent leakage only if conditional
on the activity that the system is trying
to deter

... third best

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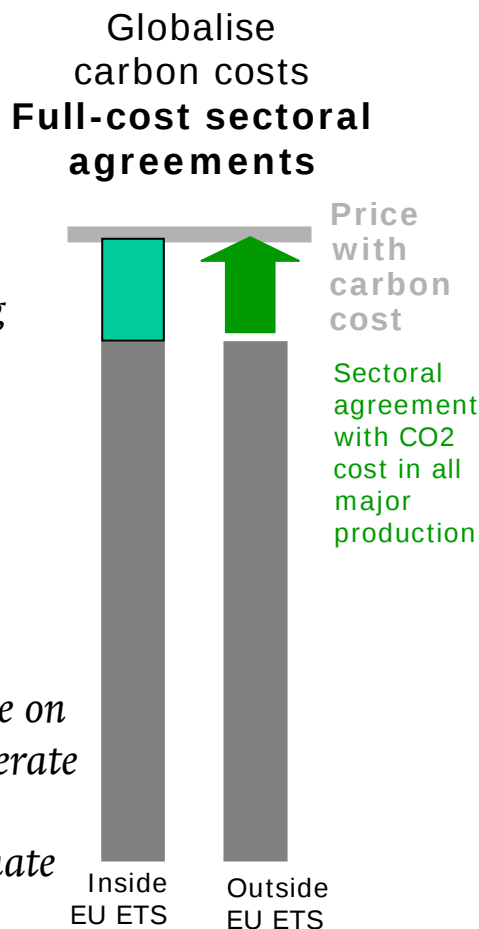
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Three Options to Level the Carbon Price: 2. upwards

The Measures

Investment relocation: *All potential countries for hosting new investment agree that new facilities will pay carbon costs through their lifetime*

Production leakage: *All producing countries agree to charge equivalent carbon price on production activities that generate a given product: For internal consumption (to not discriminate against EU goods within that country) For export (for equivalence abroad)*



- Requires strong policies of developing countries
- Risk of lowest common denominator
- Not credible for most governments to make, implement and enforce such long-term binding commitment

... first best

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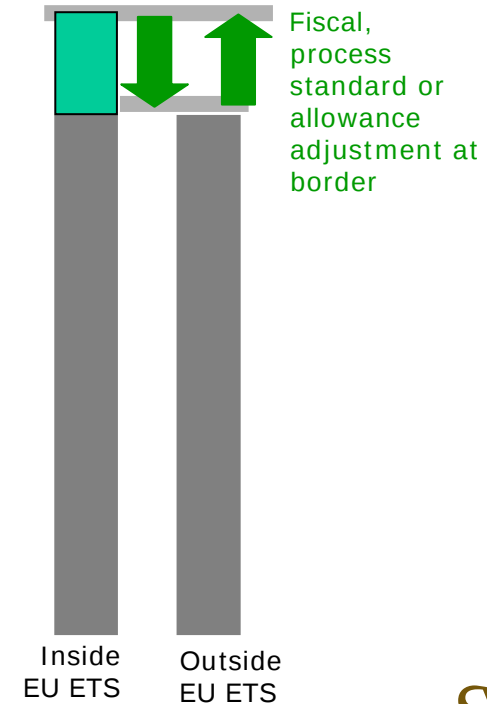
Three Options to Level the Carbon Price: 3. flexible

The Measures

- Potential problems with WTO/trade relations
- Requires at least informal international cooperation
- Perceived as a threat in international trade negotiations

... second best

Support consistent differential
Border adjustments



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Border Measures - Options

The Measures

Category	Mechanism	Issues
Import cost adjustment (imports into capped region)	Importers to buy EU Allowances: - Process specific - Product benchmarked - Product/ Process standards	Most directly linked to EU ETS objectives (therefore clearest defence under WTO exception clauses) Mechanisms could be combined (eg. Holcim proposal) Exports much harder to address
Export cost adjustment (exports from capped region)	Analogous to re-imburement of VAT on exports	Addresses exports (but intent of VAT system is to prevent double-taxation) Difficult with volatile prices Only credible for direct (auction) costs, not opportunity costs
Import taxes (imposed by capped region(s))	Tariff on imported products	Most direct conflict with thrust of trade liberalisation (though eg. VAT precedent)
Export taxes (imposed by uncapped regions)	Charges on exports - eg. Egyptian cement exports, - Chinese realignment of export taxes	No conflict with WTO Difficulty of coordination and enforcement

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The Climate Strategies Leakage Project

- Aims to identify leakage effects from EU ETS carbon pricing
- Focus on few carbon- and energy-intensive sectors: cement, steel, aluminium, electricity
- Different EU regions, interactions with major trade partners
- Analyses of different measures against leakage, focus on **border adjustments**:
 - How do border adjustments compare to free allocation and sectoral agreements
 - How could a border adjustment system for specific industries look like if applied multilaterally and without undermining investment in CO2 efficiency?
 - How do border measures relate to global climate negotiations?

Work Packages

- **I: Illustrating leakage and framing the EU ETS debate**
- **II: Measures to address leakage**
 - 1 Sectoral analysis for EU and other regions
 - The Polish power sector
 - A multi-sectoral analysis for aluminium, cement, electricity and steel
 - CO2 price impact on industrial cost structures
 - 2 Border tax adjustment for EU- China trade
 - 3 Legal and institutional analysis of border tax adjustment
- **III: Political analysis of using border adjustments to address leakage**
 - 1 US-EU Relations
 - 2 Japan
 - 3 Emerging economies
 - 4 Implications for the Post 2012 global climate regime

Key Tasks:

Sounding out the options and the effects of BA

- Where to apply border adjustment: A carbon price works through the value chain – how can BA be supportive in this respect?
 - What products?
 - How many benchmarks?
 - How far down in the production chain?
- Level:
 - Who determines it
 - Symmetric / asymmetric
 - Also electricity price increases
- Compensation financial / physical terms: Tax or certificates
- Compensation of trade with
 - Every other country
 - Non Annex 1 countries
 - Countries with/out climate policy

... and reducing the risks

- Focus on **specific sector characteristics**, not generalised protection of a 'carbon pricing' zone
- **Separate** the four categories of action
- **Recognise** the debate in other regions – notably the US
- Pursue in a **multilateral** setting, not as unilateral protection of EU (or US, or other) industry:
 - as a legitimate element in protecting integrity of multilateral agreement
 - link to sectoral negotiations as a way of incentivising cost internalisation between major producers
- Engage the **trade community** from the outset and not burden the WTO with the core political problems

The Project Team

Work Package	Team Members	Affiliation
I: Illustrating Leakage		
Illustrating leakage and framing the EU ETS debate	Susanne Dröge, Manuel Graf Roland Ismer Stéphanie Monjon	SWP - German Institute for International and Security Affairs, Berlin LMU - University of Munich CIREN - Centre for Research on the Environment and Development, Paris
II: Measures to address leakage		
1 Sectoral analysis for EU and other regions		
1.1 The Polish power sector	Wojciech Suwala, Mariusz Kudelko	MEERI - Mineral and Energy Economy Research Institute of the Polish Academy of Sciences, Cracow
1.2 A multi-sectoral analysis for aluminium, cement, electricity, steel	Philippe Quirion, Stéphanie Monjon	CIREN
1.3 CO2 price impact on industrial cost structures	Katja Schumacher	Oeko - Oeko-Institut, Berlin
2 Border tax adjustment for EU-China trade	Tancrède Voituriez	IDDRI –Institut du developpment durable et des relations internationals, Paris
3 Legal and institutional analysis of border tax adjustment	Roland Ismer Karsten Neuhoﬀ Matthieu Wemaere	LMU Cambridge University , Electricity Policy Research Group IDDRI
III: Political analysis of using border adjustments to address leakage		
1 US-EU Relations	Harro van Asselt Thomas Brewer Michael Mehling	IVM Institute for Environmental Studies, Amsterdam Georgetown University , Washington University of Greifswald
2 Japan	Yukari Takamura	Ryukoku University Kyoto
3 Emerging economies	N.N.	
4 Implications for the Post 2012 global climate regime	Susanne Dröge Anne Koch	SWP

Project Timeline and Outputs

- Kick-off workshop 4th February 2008, end of project February 2009
- Duration: February 2009
- Expert meetings: regional (Eastern Member States) in April 2008; major trade partners (US and Emerging Economies) in Summer/Autumn 2008
- Interim Project Meeting: July, first results and proposals
- Output: workshops, papers, project report (www.climate-strategies.org)

Many thanks for your attention

Project Coordination:

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More Background and Details

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Border Measures

- **Technicalities** of a BTA: what benchmark for the technology used? Best available technology (BAT)? What allowance price? Average?
- **Legality** relates to the characteristics of the emission as such: not incorporated in the traded goods; discrimination of **like products**!?
- **Justification** under WTO law seems likely, however, a case would be needed to have a final ruling on environmental BTA.
- **Art XX**: careful design needed for an exception (criteria: necessary, least trade restrictive)
 - Multilateral negotiations of the issue
 - Others not forced to apply a similar method
 - Different development levels taken into account

Border measures cont.

- **Quotas for imports:** not as easy to justify as the tax version of border adjustments (v.Asselt/Biermann 2005)
Art XIII prohibits discriminatory quantitative restrictions
- **Technical regulations and standards,** e.g. for energy use of goods (fall under the GATT TBT agreement):
mandatory vs. Voluntary matters and legality of non-product-related measures is not clear. Again, non-discrimination, transparency and environmental objective has to apply

Institutional Framing of the Trade and Climate Issues

- Unilateral measures: contradict WTO concept
- WTO: countries assumed as homogeneous in rights and obligations
- UNFCCC: common but differentiated responsibilities
- Sectoral agreements: own trade-related aspects
- Major trade partners: regional agreements and WTO
- Germany and EU: trade is not subject to national decisions

Message 1: Even for the most impacted sectors, like cement and steel, *profit margins* can easily be protected by free allocation

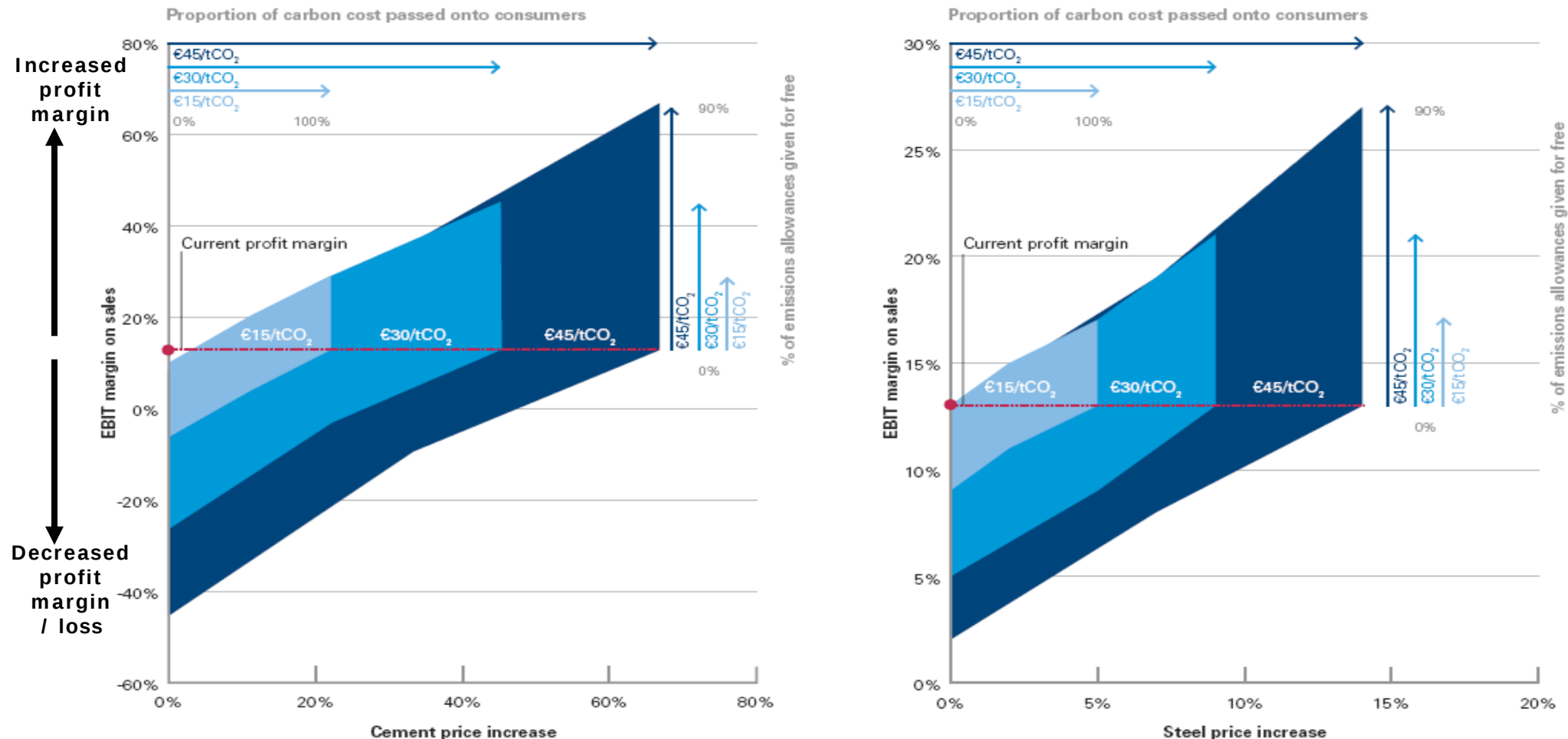
EU cement and steel profit margins for different C prices, allocations and pass-through

a) EU cement industry

b) EU steel industry

i) Profit margin

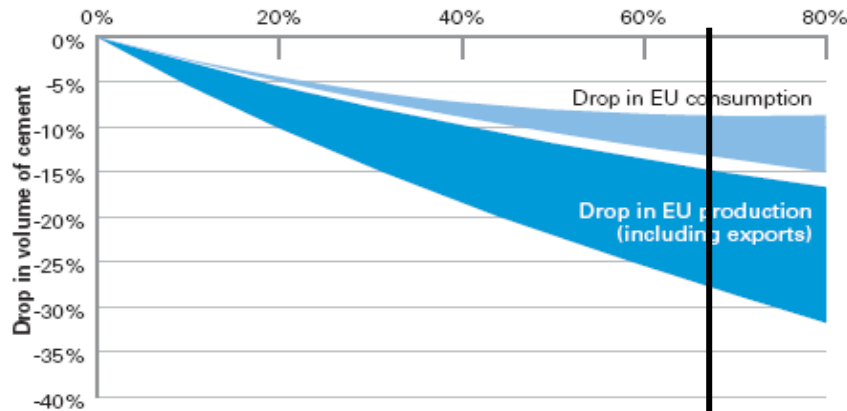
Profit margins can be maintained or grown by government allocation decisions and by industry decisions about passing costs onto consumers.



Message 2... but profit-maximising response will still raise prices, resulting in trade impacts of a 'few percentage points' for the most impacted sectors

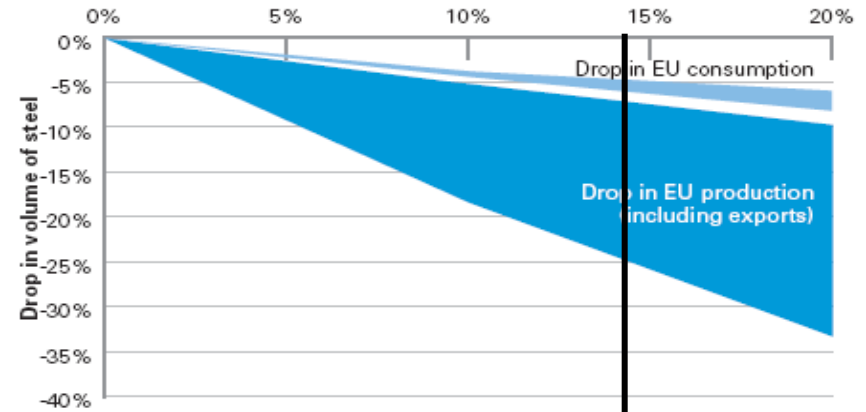
ii) Consumption and production

Passing costs onto consumers will lead to a reduction in demand and a bigger reduction in EU production volumes.



Cement

100 % @
€45 / tCO₂

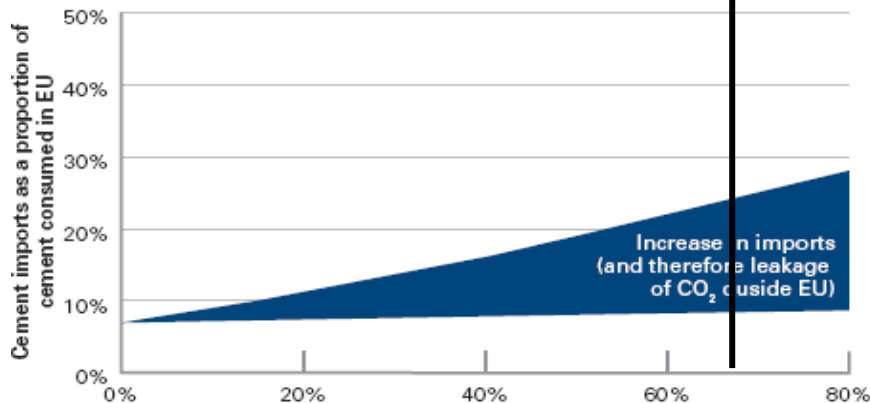


Steel

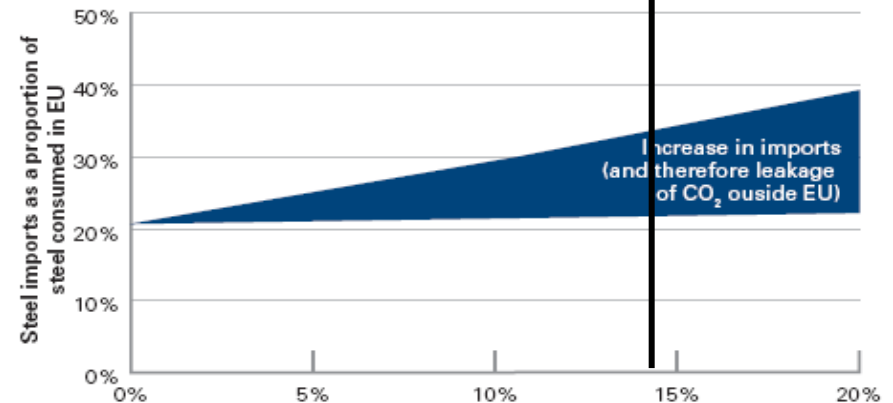
100 % @
€45 / tCO₂

iii) Imports

Passing costs onto consumers will lead to increased imports, with a partially offsetting increase in CO₂ emissions abroad.



Cement price increase



Steel price increase

Note: Trade sensitivities estimated from range of historical variability

Source: Data from CIRED, as presented in Carbon Trust (2008)