Elements of emissions trading design addressing leakage

Session 3: World Trade and Emissions Trading
9th Annual Workshop on Greenhouse Gas Emisson Trading
IEA/

14/09/2009

Susanne Droege
German Institute for International and Security Affairs (SWP)

Climate Strategies

SWP

Climate Strategies Project „Tackling Leakage"

- Investigating leakage from the EU ETS from energy-intensive industries, given plans for Phase III (2013-2020)
- Extent to which carbon leakage may occur
- Should carbon leakage be addressed and how? Is there a role for border adjustments?
- The international policy environment

Trade-off

- The EU ETS is confronted with a dynamic international business and policy environment – hard to predict how a global carbon market will evolve
- The climate policy goal *should be* to preserve the carbon price signal while at the same time minimise the leakage incentives. Can this be achieved?

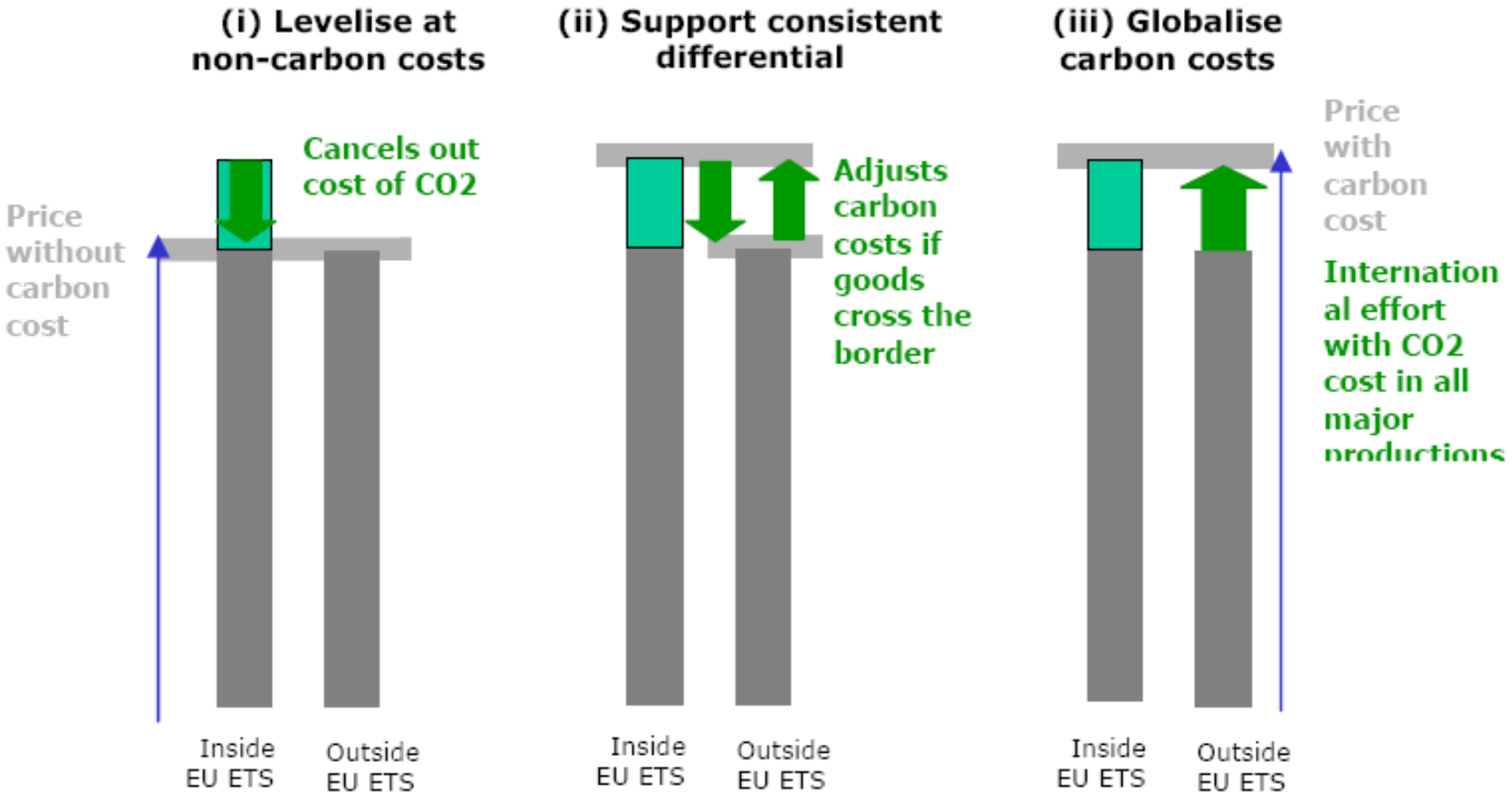
Different carbon pricing will prevail

- Fundamental challenge of the EU ETS cannot be solved:
  - **unilateral** carbon pricing for a region with
  - high **worldwide** trade and financial market **integration**
- **except** there will be a global carbon pricing approach enabled by national ETS, established on a similar timescale
- **Implies**: carbon prices will differ. There are a number of trade-offs to be taken into account if carbon leakage is addressed!
- **Demands**: to ensure an internationalisation of efforts over transitional period

Indicators

Industries' reactions to an increase in carbon costs determined by	**CASE II model**
Transport costs relative to CO_2 cost	√
Exchange rate risks	
Market structures (domestic and global)	√
Share of carbon costs in overall cost structure (fixed vs. variable, direct vs. indirect)	√
Differences in the carbon cost shares across regions	√
Product differentiation and market segmentation	√
Customers reaction to a price increase, based on: vertical integration of industry, quality issues, long-term contracting	
Abatement costs and abatement options for direct and indirect costs	√
Legal and political environment	√

The options for levelling carbon costs



The toolbox

- Tools to level costs **downwards**:
  - **(i) free allocation;**
  - (ii) direct compensation/state aid,
  - (iii) reduction of non-carbon location costs (taxes, labour),
  - **(iv) export rebates by ETS region**

- Tools to level **upwards**:
  - **(v) import adjustment by ETS region**
  - **(vii) export tax by Non-ETS region**
  - (vii) international agreements (countries, sectors)

Free allocation and ETS around the globe

- Regarded as ‚easy' solution compared to other tools
- Levels costs **downwards**, helps to maintain market shares and profits, could work for some sectors, but …
- … will not take out the incentives for leakage. If made conditional on activity, it takes away price signal. Benchmarking is complex (moving baseline, products, processes)
- Thus, no strong carbon price signal for energy-intensive sectors combined with sustained leakage risk
- Free allocation around the globe (US!) could create a case of disputable subsidisation of competing industries

Border adjustment: two major concepts

A Focus on the country of origin: apply a tariff to (all) goods imported from a region which does not deliver a climate policy approach similar to your own region/country. Regardless of the actual carbon emitted in that country and by the respective producer/sector. Idea: deter free riding on national/international efforts

B Focus on emissions and carbon costs: apply a border cost adjustment (to be defined) to a particular import/sector based on carbon emissions and differential to local carbon costs. Idea: prevent carbon cost differential to cause carbon leakage

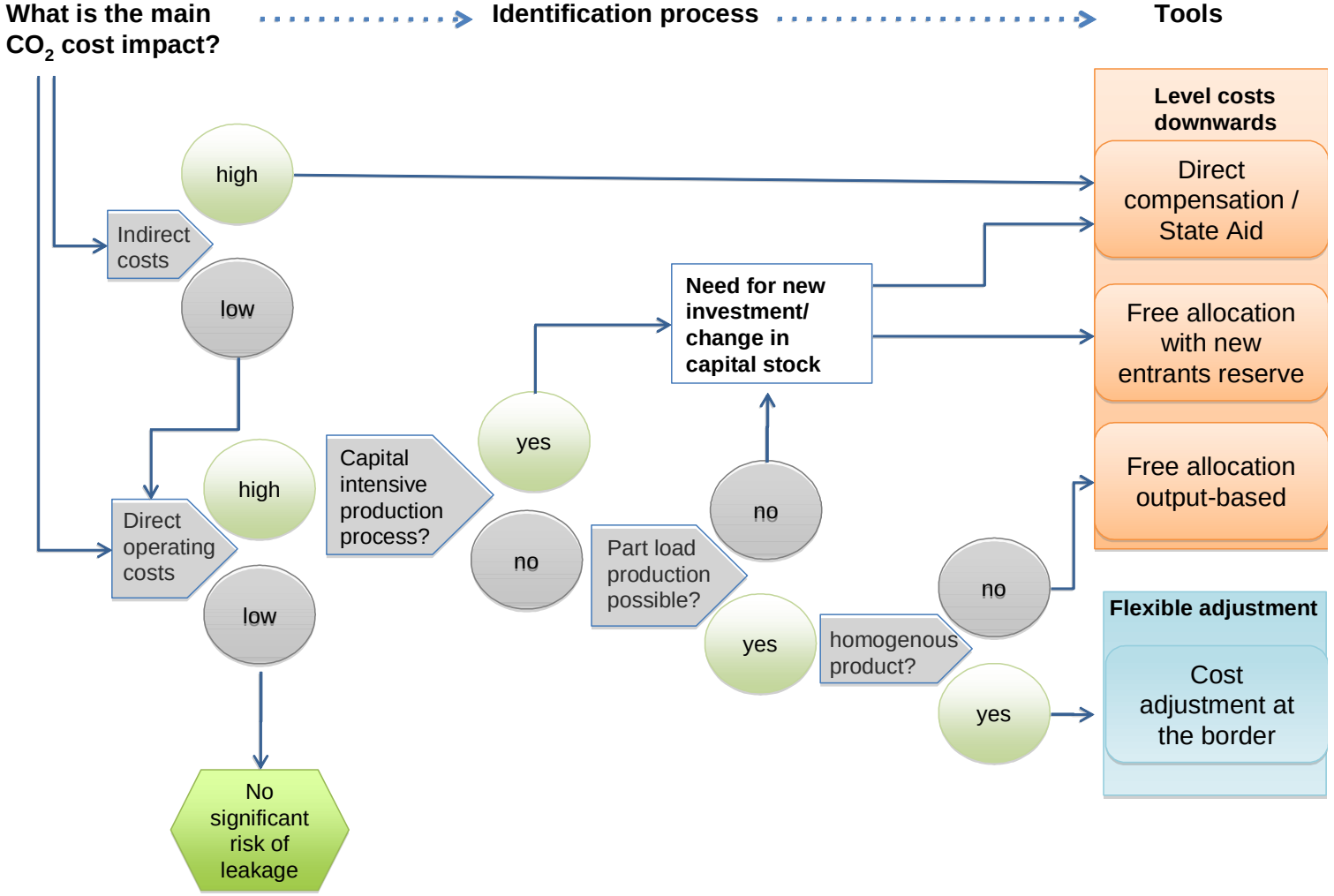
Border Adjustments and international ramifications

- Most targeted tool against import/export leakage effects from some sectors (Cement, Steel)
- Most difficult tool in political terms (the concepts and terms are mixed up in political debate!)
- Imports/exports to/from ETS; exports to ETS?
- Unilateral or multilateral?
- Non-discrimination needed to be WTO compatible
- But: a non-discriminatory approach will not fully compensate for the cost differences

Meeting the leakage challenge

- **Assuming that a small set of sectors contributes to the phenomenon…**
  - **Tailor** cost compensation along leakage channels (investment and trade) and along sectoral characteristics (direct vs. indirect cost, impact on operational cost, capacity utilisation, part load options, homogeneity of product)
  - Regular **revision** in the light of
    - technological advancements,
    - trade flows,
    - international efforts esp. in trade partner countries
- **Which tool should be applied to which sector?**

Screening of sectors to identify appropriate tools



Using BA – some major project insights

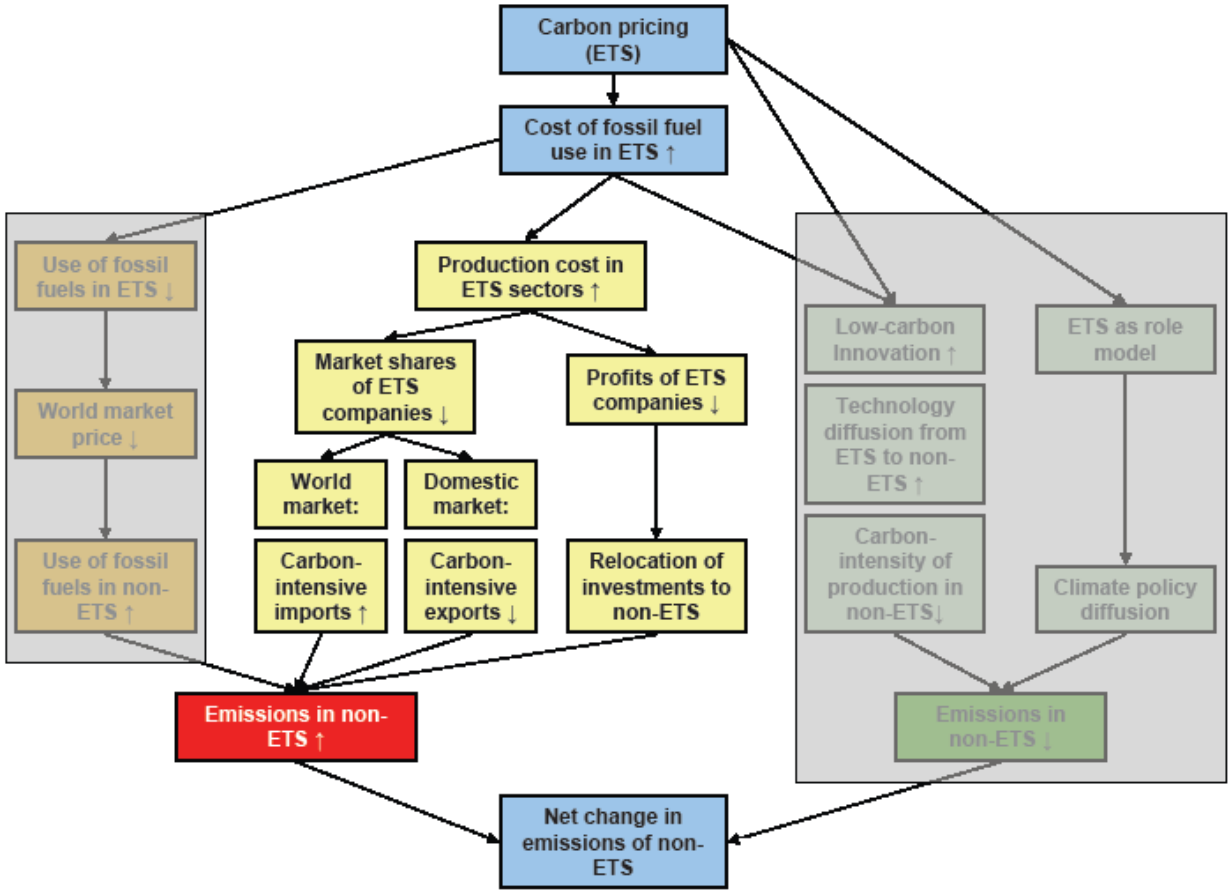
- Application useful for carbon-intensive sectors at **low end of value chain** with **homogenous** good and limited technological potential (e.g. clinker) → ensures carbon price signal within ETS territory
- **Needs to be multilaterally** agreed, including informal consent on the limited use of BA
- If unilaterally applied (EU ‚inclusion of importers'), adjustment for imports based on *assumption* that all importers use best available technology (**BAT**), i.e. Xt CO2/output unit. **Trade-off**: ensures non-discrimination, but does not fully eliminate leakage from a sector

Policy Instrument	Trade Policy Aspects	Climate Policy Aspects
	I: Taxes/Tariffs	
Tax/Tarrif on carbon-intensive imports (benchmarked)	Levelling of carbon costs vis-a-vis third parties based on national treatment; Similar to VAT destination principle; Revenues remain with importer	Basis for carbon intensity needed If applied differentially, potential incentive for engaging non-participants ('free riders')
Rebates for carbon-taxed exports		No carbon price effect for consumers abroad
Export taxes	Levelling, Revenues remain with exporter	Mitigation effects. Address financial needs of major exporters from emerging and developing countries
	II: Allowances	
Importers need to buy and surrender allowances	Application with benchmark based on national treatment: as for tax/tariff Mandatory rule based on actual carbon would involve extraterritorial application of national/regional climate policy	Which allowances are eligible? International offsets, Allowances from other ETS?
Exporters are exempt from surrendering allowances	Legitimate if considered as a charge (as per VAT) not a regulation	Relates to free allocation (III)
	III: Other Cost Adjustments for Exports	
Exporters receive reimbursement for allowances	Subsidy?	Undermines incentive to internalise carbon costs
Free allocation for trade-exposed exporters	Subsidy?	Undermines incentive to internalise carbon costs

Thanks for your attention!

Susanne Droege
dge@swp-berlin.org

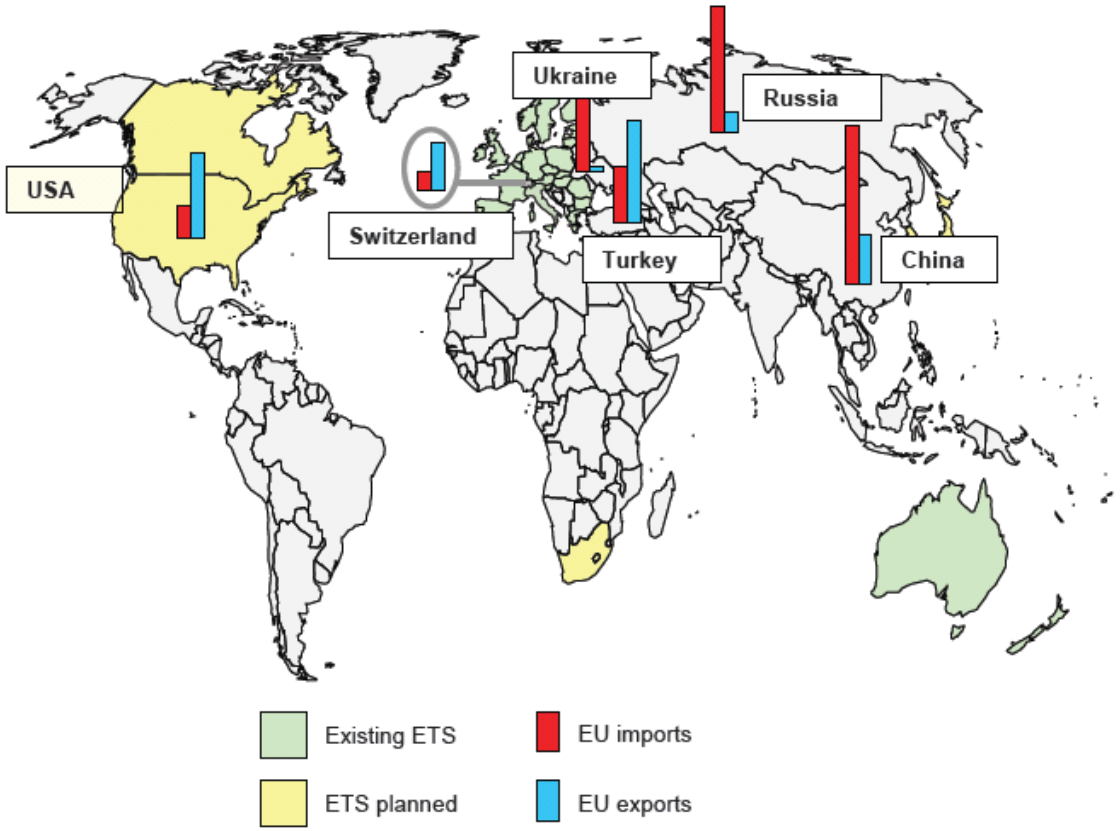
Backup
Leakage channels



Source: Climate Strategies Report, Droege et al. 2009

Backup

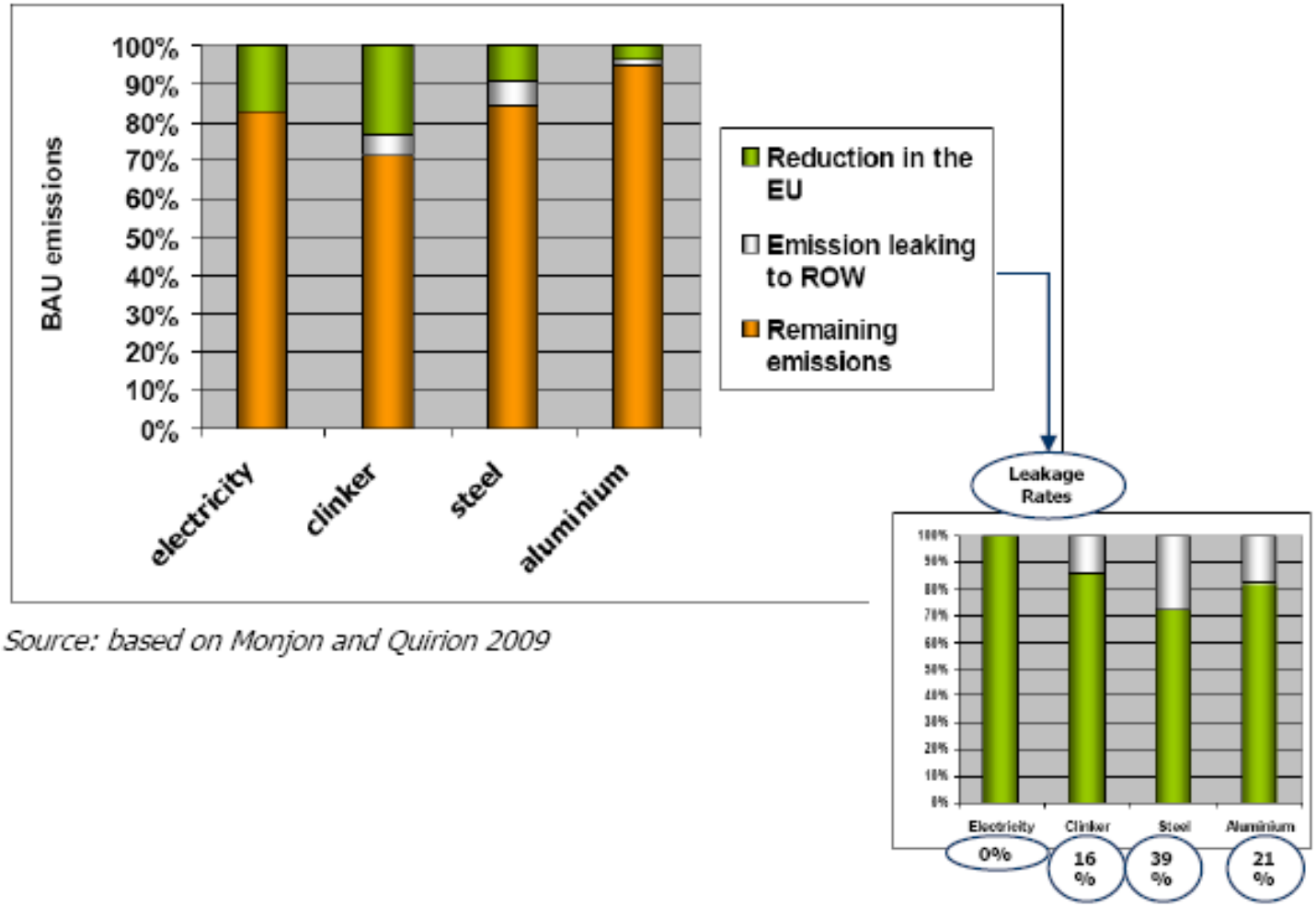
The international setting: EU steel trade (2007) and ETS



* USA, Switzerland, Ukraine, Turkey, Russia, China account for approximately 50% of total non-EU iron and steel trade.

Source: Climate Strategies Report, Droege et al. 2009

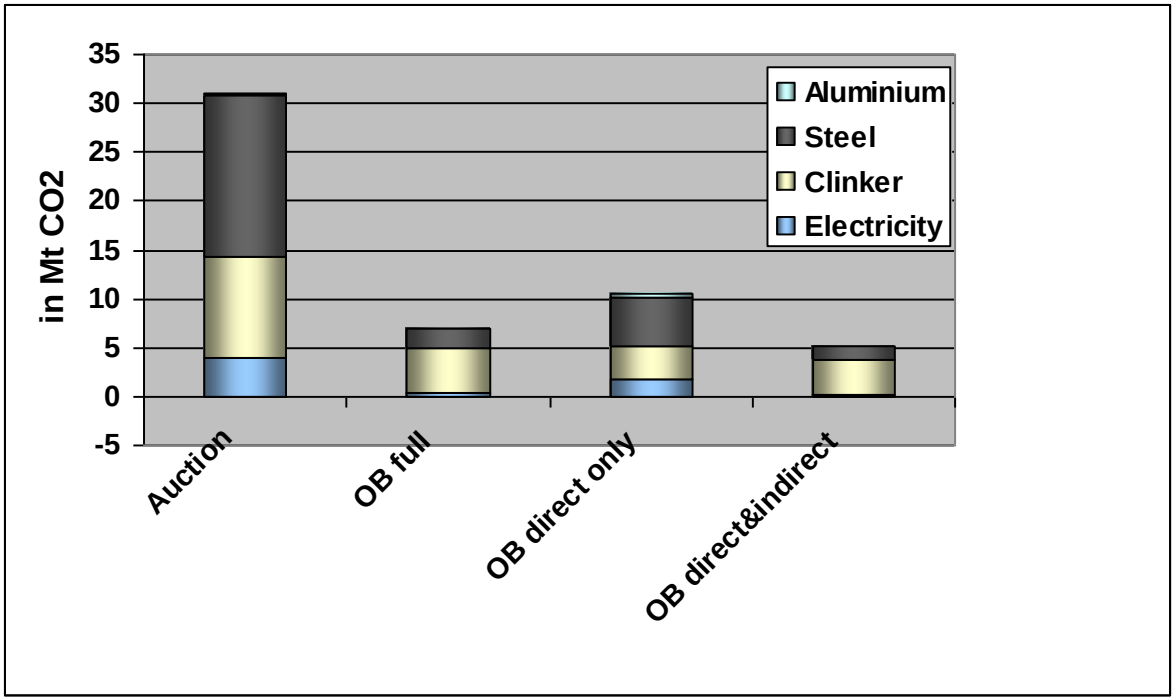
Backup: Leakage from EU ETS 2016, full auctioning, 4 sectors



Source: based on Monjon and Quirion 2009

Backup

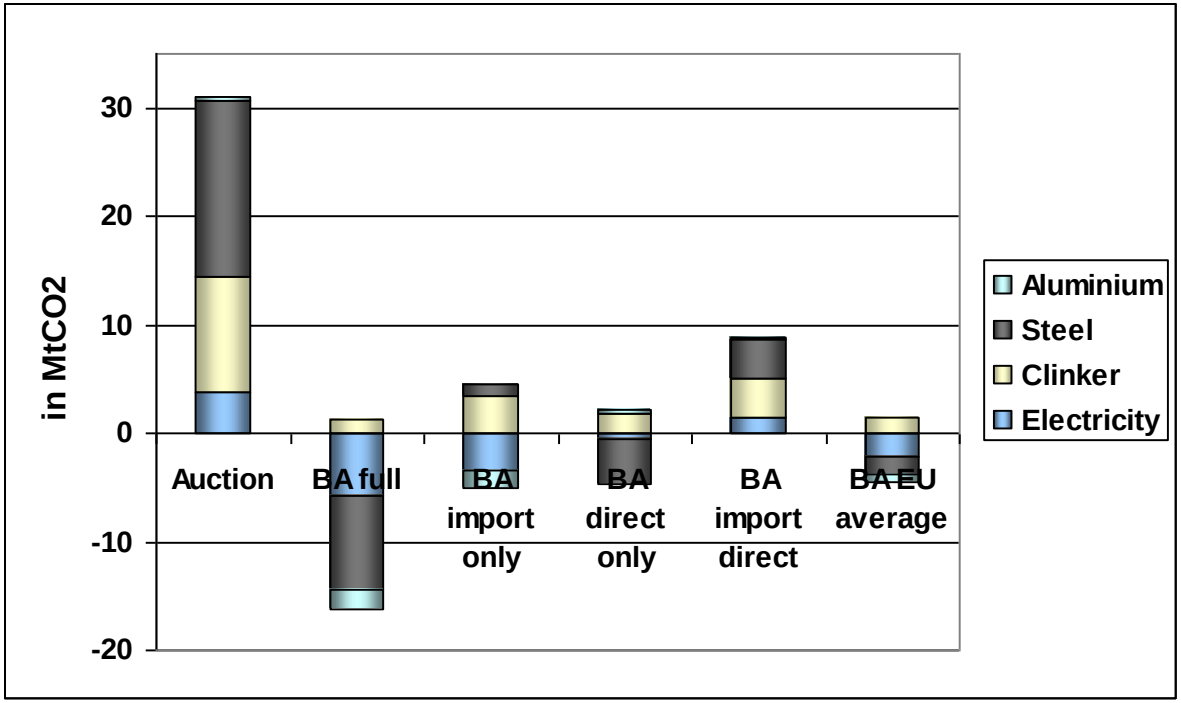
Absolute leakage from all four sectors in MtCO2 under different OB scenarios in 2016, EU ETS



EU ETS 2016 overall cap: 1,865 MtCo2, reduction by 812 Mt (2005 level), Climate Stragies Report; Droege et al. 2009

Backup

Absolute leakage from all four sectors in $MtCO_2$ under different BAs in 2016, EU ETS



On negative leakage: driven by trade integration/international market shares. (a) due to carbon price domestic consumption (including imports) goes down, so does production in ROW (elasticities and adjustment level matter). (b) rebate at the border helps increase/sustain exports. Overall effect: production at home instead of in ROW

EU ETS 2016 overall cap: 1,865 MtCo2, reduction by 812 Mt (2005 level), Climate Stragies Report; Droege et al. 2009

Thank you for your attention

Climate Strategies' Contact Details:

UK - Managing Director: Jon Price (jon.price@climatestrategies.org)
US - Research Director: Thomas L. Brewer
Secretariat: Climate Strategies c/o University of Cambridge
13-14 Trumpington Street Cambridge, CB2 1QA, UK
+44 (0) 1223 748812
www.climatestrategies.org

Climate Strategies aims to assist governments in solving the collective action problem of climate change. We connect leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation.

Our programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy. To effectively communicate insights into climate change policy, Climate Strategies works with decision-makers in government and business, particularly, but not restricted to, the countries of the European Union and EU institutions.

Climate Strategies is grateful for funding from The Carbon Trust (founding supporter); governments of Australia, ADEME (France), MFA (Norway), Swedish Energy Agency, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ, Germany), DEFRA, OCC, DFID (UK); and foundations, the Center for International Public Policy Studies (CIPPS, Japan) and European Climate Foundation (ECF).