DIW BERLIN

Presentation at Side Event, Bonn Climate Talks

Design of carbon pricing for innovation and investment in climate friendly materials production and use

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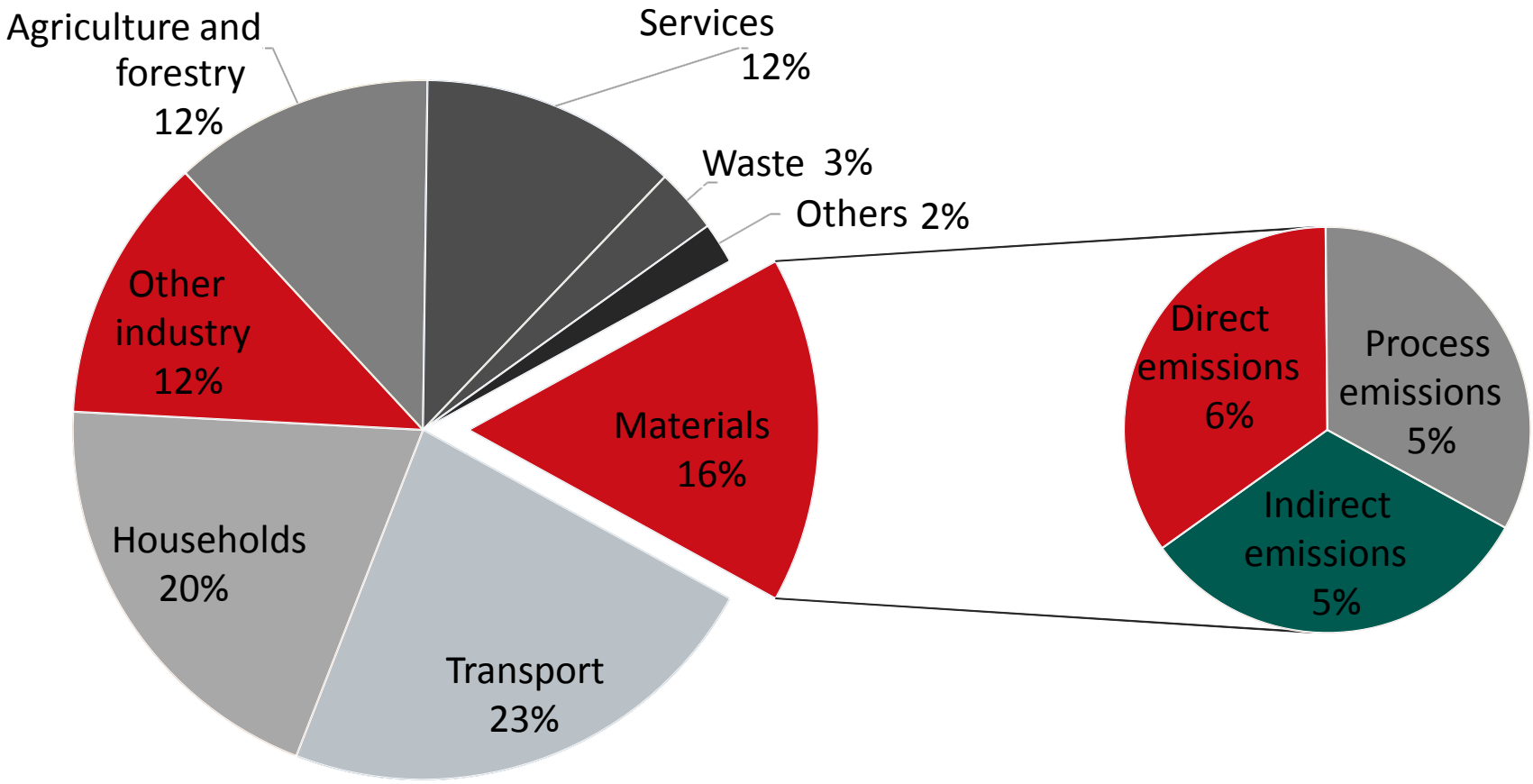
1 Basic materials = 16% of EU greenhouse gas emissions

Share of EU greenhouse gas emissions

[power sector emissions are attributed to each sector as indirect emissions reflecting electricity use]



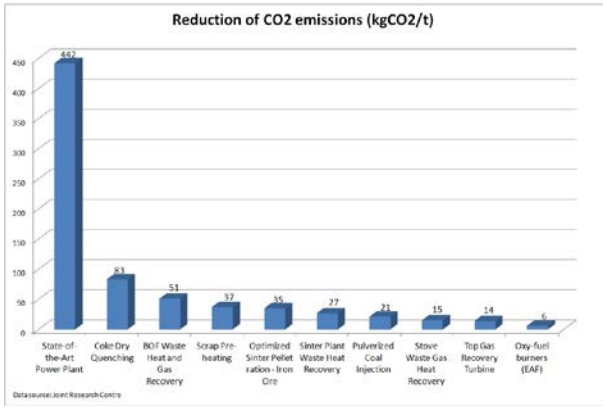
International climate policy objectives can only be achieved with the materials sector.

Source: Based on Statistics of EEA for 2010, Attribution of indirect emissions as in UNFCCC 2010d

2 How to make the materials sector climate friendly?

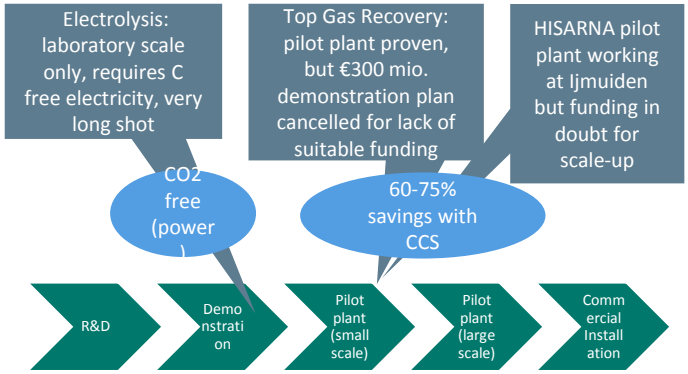
Fuel shifting and production efficiency

Example: Current steel plant



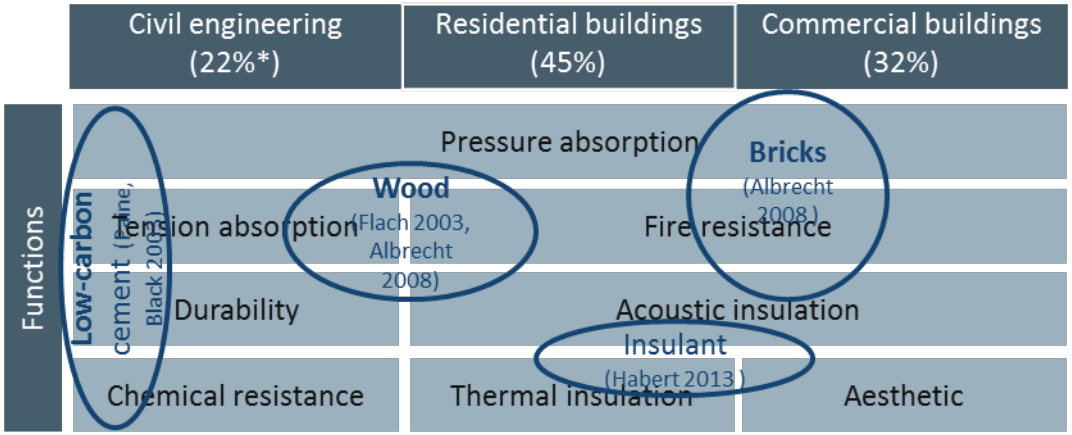
Carbon focused process innovation

Example: Ultra Low Carbon Steel (ULCOS)



Material efficiency, lower-carbon and innovative materials

Example: Cement



With portfolio of climate friendly options, materials sector can reach policy objectives.

3 Carbon price not „active“ for most mitigation options in basic materials

Mitigation opportunity	Role that carbon pricing can play	Experience from ETS with free allocation
Fuel shifting and production efficiency	Incentives for more efficient production	Succesfull use of benchmarks
Carbon focused process innovation	Extra Innovation funding	Lack of incentives -> not sustainable
	Viability of large-scale use	
Material efficiency and substitution	Incentives for efficient use / lower-carbon material	

Munnings et al. (2016). “Experience with Pricing Carbon Consumption”, RFF Discussion Paper.

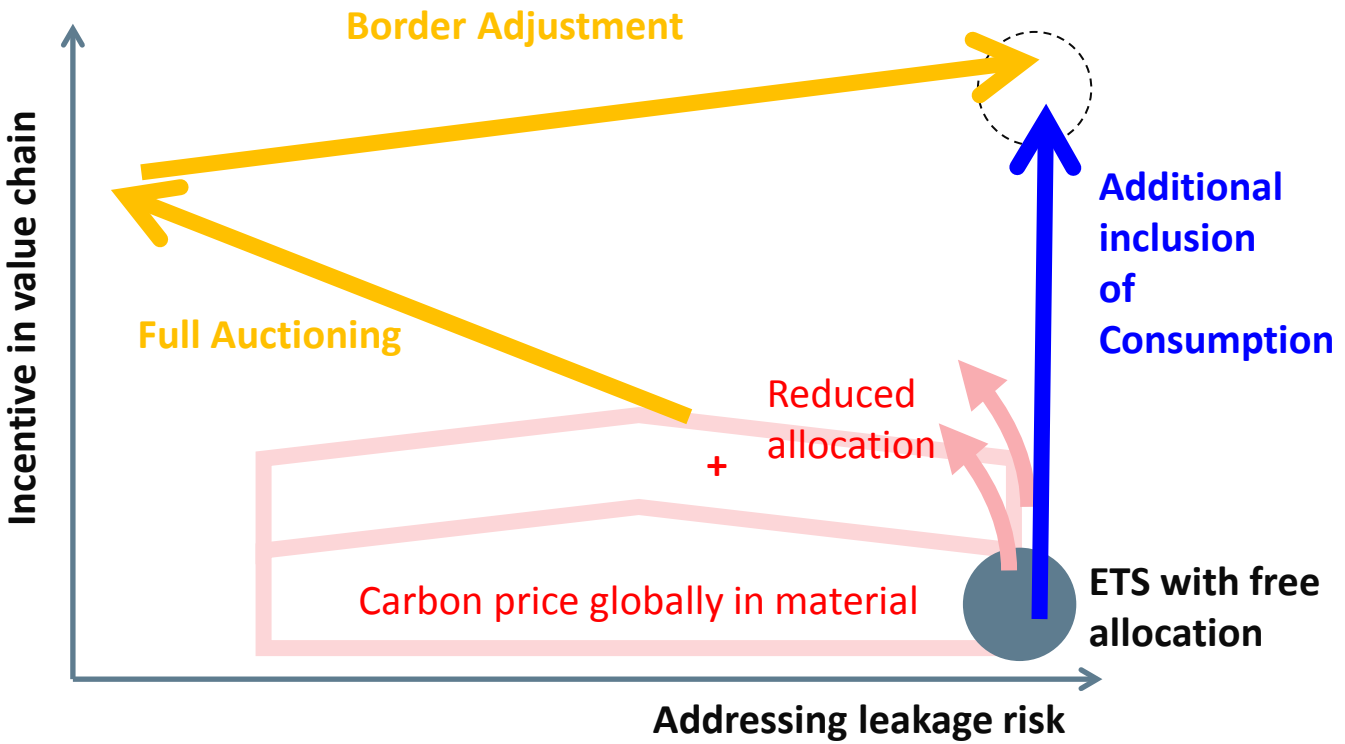
4 Three options to extend carbon pricing to value chain

Incentives for

Climate friendly production with incremental cost

Efficient material use and substitution

Production efficiency and fuel shifting



Three options for leakage protection in post Paris world of differentiated carbon prices:

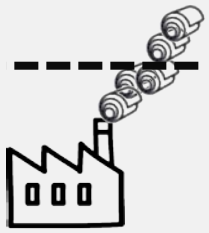
0. Iterative increase of carbon price in traded materials with reduction of free allocation
1. Full auctioning for incentives backed by Border Adjustment for leakage protection
2. Free allocation for leakage protection & Inclusion of Consumption for incentives

http://climatestrategies.org/projects/inclusion-of-consumption-in-emissions-trading/

5 Option 1: Border related approaches - politically or economically difficult

Coverage of material producers

Surrender allowance to cover CO2 emissions →



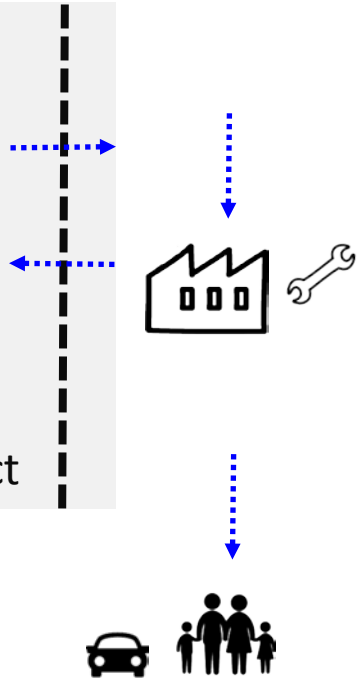
- Incentive for climate friendly material production
- Consumers contribute to carbon cost: Essential for viability of technologies with incremental cost

Carbon leakage protection

Charge on import

Reimburse export

- benchmark * weight * EU ETS price
- also material in product



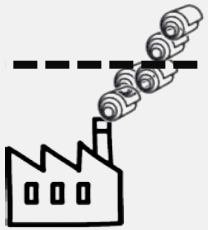
Incentives for efficient material use and substitution: Saves European consumers the consumption charge

For WTO compatibility (Art 3 GATT), use best available technology benchmark in combination with full auctioning to avoid discrimination

Ismer, R. and Neuhoff, K., 2007. Border Tax Adjustments: A feasible way to support stringent emission trading, European Journal of Law and Economics 24, p. 137–164.

Option 2: Inclusion of Consumption of basic materials in carbon pricing

Coverage of material producers



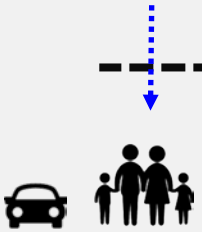
Surrender allowance to cover CO2 emissions

Free allowances allocation (benchmark * tons material)

Incentive for climate friendly material production and carbon leakage protection

Consumers contribute to carbon cost: Basis for viability of technologies with incremental cost

Consumption charge for **final consumers**



Charge on material in product sold in country (benchmark * tonnes material * ETS price)

Incentives for efficient material use and substitution: Saves European consumers the consumption charge

Ismer, R., & Haussner, M. (2015). "Inclusion of Consumption into the EU ETS: The Legal Basis under European Union Law". *Review of European, Comparative & International Environmental Law*.

Project Team:
Inclusion of Consumption in Emission Trading

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Finding from technical reports on Inclusion of Consumption (IoC)

What to learn from international experience?

- Engaging consumers can unlock unexpected potentials (Japan)
- Inclusion of power consumption established in Korea and China

What is the legal basis?

- IoC can be part of EU ETS Directive and deliver environmental objectives
- IoC is consumption based and thus on good side of WTO law

What administrative approach can limit public and private costs?

- Small fraud risk because no pay-out and value only fraction of product price
- Simplified procedures possible , e.g. aggregate quarterly reporting

What can we learn from quantifying the impact across product categories?

- Focus on basic materials: steel, clinker, aluminum (plastics, pulp&paper)
- De-minimis rules possible

Conclusion I

Trade of materials motivates free allowance allocation, mutes price

Three approaches reinstate full carbon price (while avoiding carbon leakage)

1. Converging carbon prices + phase out free allocation: **Slow**

2. Shift from auction to border adjustment: **Difficult politics/economics**

3. Inclusion of consumption in ETS: **Suitable for basic materials**

Conclusion II
Inclusion of Consumption (IoC) of carbon intensive materials in ETS

IoC restores carbon price signal to be effective for all mitigation opportunities

-> More mitigation opportunities can be realized at lower cost

Effective carbon price provides clarity for strategic choices of companies

-> Makes ETS more effective in supporting innovation and investment

Producers of materials covered by IoC receive free allocation at full benchmark

-> Shifts the focus of debate from carbon leakage protection to innovation

IoC builds on international experience and avoids lock-in with national systems

-> Pool data for better benchmarks and thus stronger incentives

-> Once carbon prices converge, free allocation with IoC can be easily abandoned