

Presentation to OECD Steel Committee

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

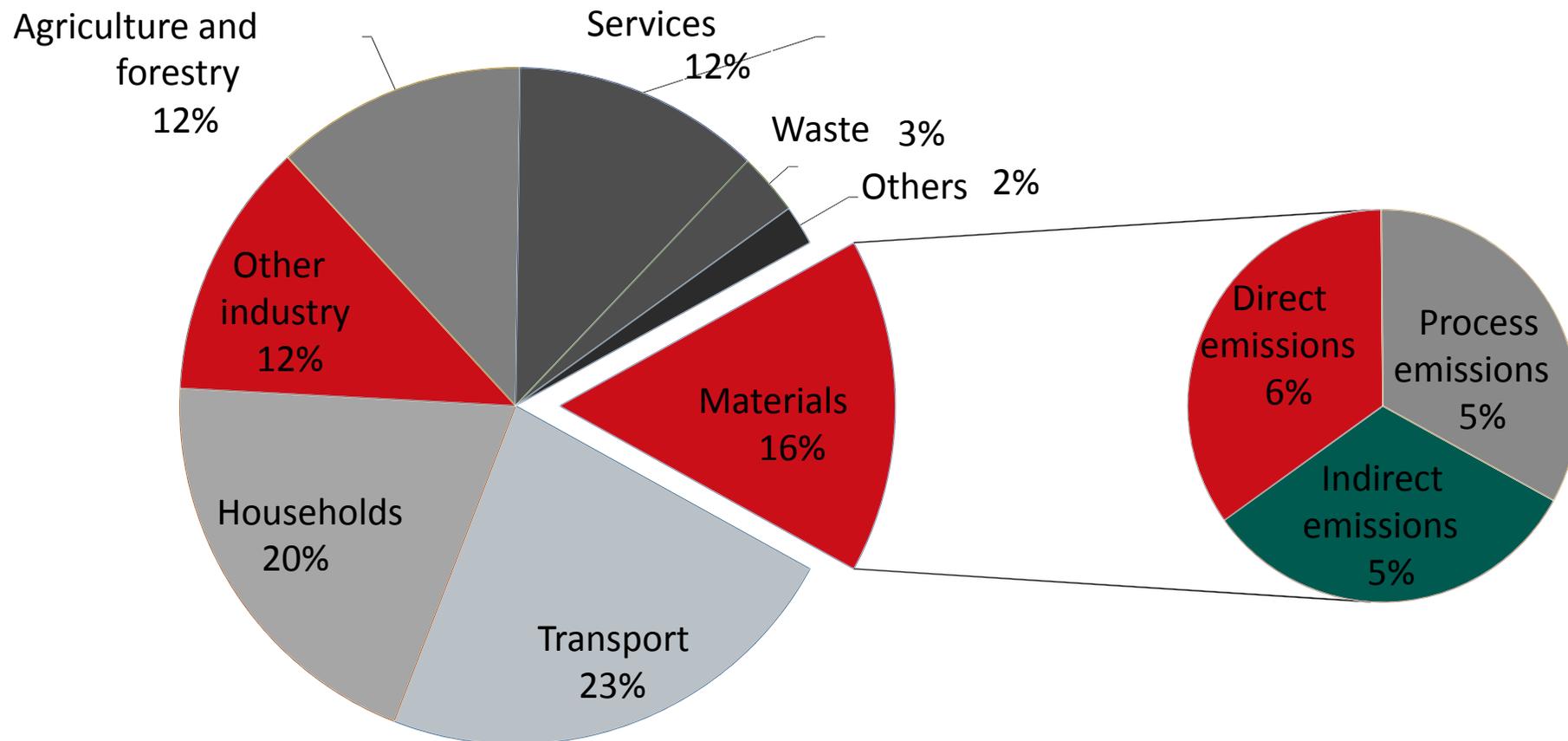
Karsten Neuhoff
Paris, 23rd March 2017

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Basic materials = 16% of EU greenhouse gas emissions

Share of EU greenhouse gas emissions

power sector emissions are attributed as indirect emissions to electricity use

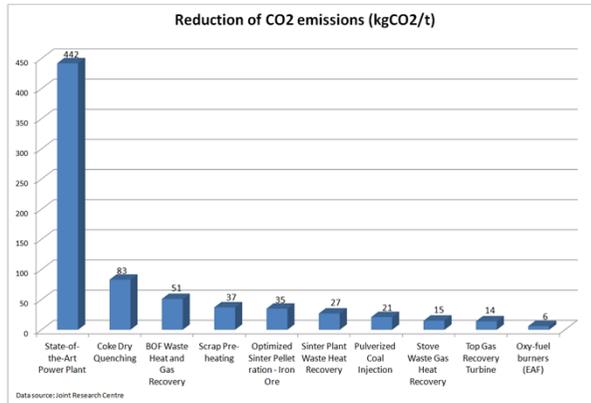


International climate policy objectives can only be achieved with the materials sector.

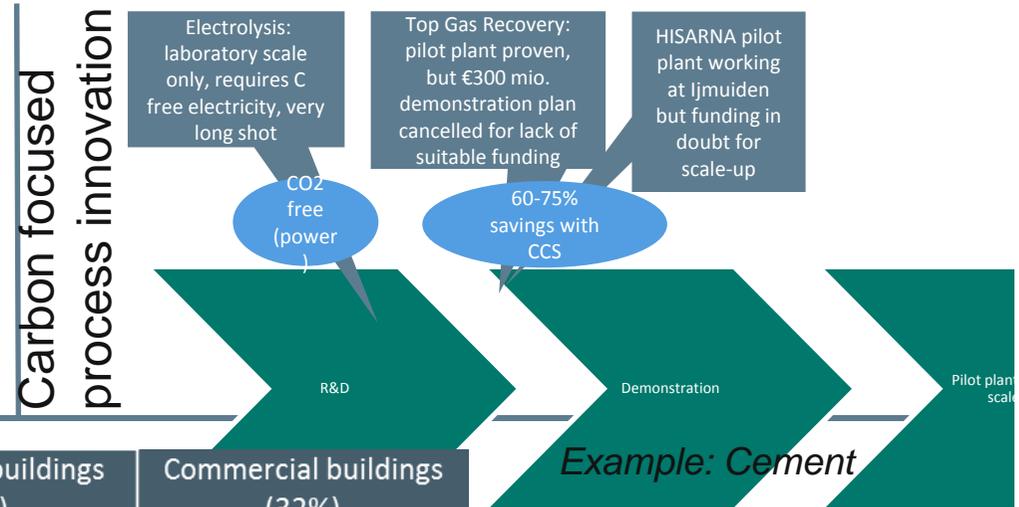
What can make the materials sector climate friendly?

Fuel shifting and production efficiency

Example: Current steel plant



Example: Ultra Low Carbon Steel (ULCOS)



Material efficiency, lower-carbon and innovative materials

	Civil engineering (22%*)	Residential buildings (45%)	Commercial buildings (32%)
Pressure absorption			Bricks (Albrecht 2008)
Thermal insulation	Wood (Flach 2003, Albrecht 2008)		
Fire resistance			
Acoustic insulation		Insulant (Habert 2013)	
Aesthetic			
Durability			
Chemical resistance			
Low-carbon cement (Flach, Black 2008)			

Example: Cement

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

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Carbon price not „active“ for most mitigation opportunities

Incentive for modernization/ emissions reductions	Role that carbon pricing can play:	ETS, free allocation, no price pass-through
Fuel shifting and production efficiency	Savings with more efficient production	 <div style="border: 2px dashed red; padding: 10px; margin-top: 10px;"> <p style="color: red; text-align: center;">Lack of incentives -> not sustainable</p> </div>
Carbon focused process innovation	Extra Innovation funding Long-term cost allocation	
Material efficiency and substitution	Savings with efficient / lower-carbon material use	

What to learn from international experience

- > Engaging consumers can unlock unexpected potentials (Japan)
- > Inclusion of consumption possible (power consumption in ETS Korea, China)

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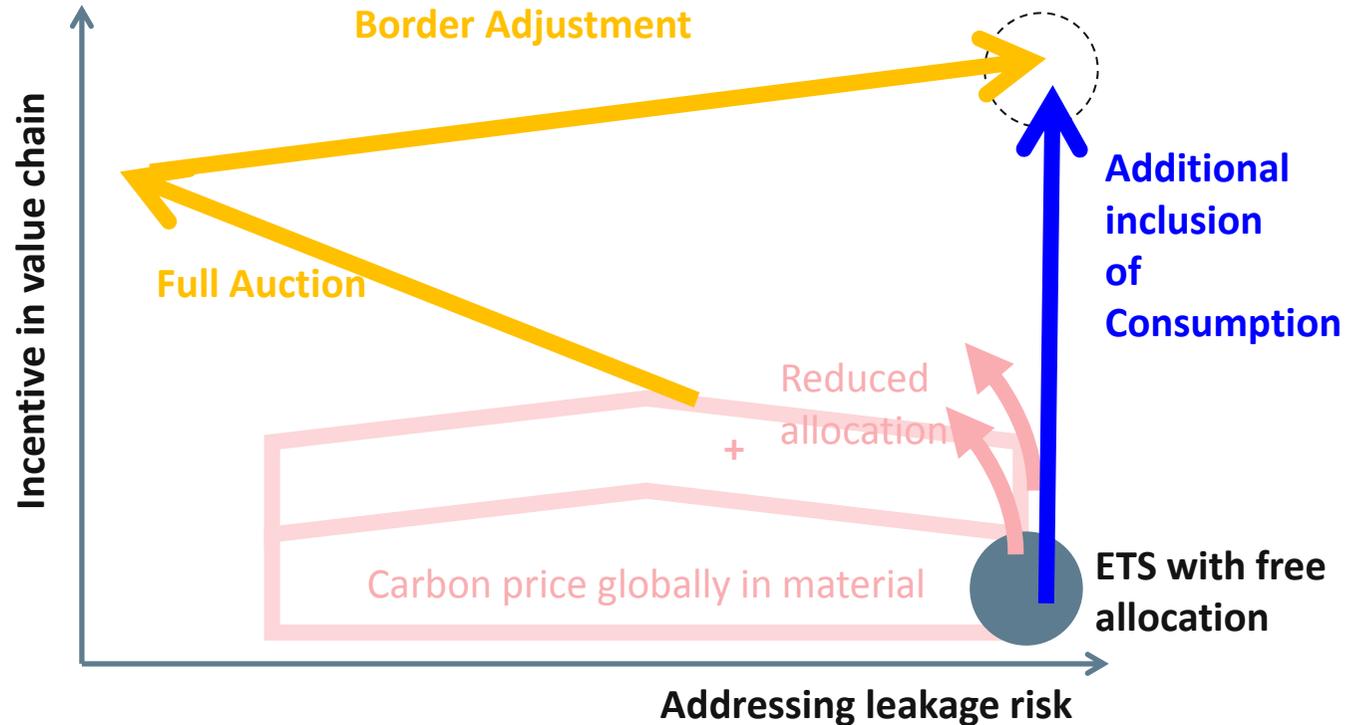
Three options to extent carbon pricing to value chain

Incentives for

Climate friendly production with incremental cost

Material efficiency and substitution

Production efficiency and fuel shifting



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

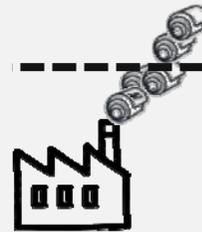
0. Iterative increase of carbon price in traded materials with reduction of allocation
1. Full auctioning for incentives backed by Border Adjustment for leakage protection
2. Free allocation for leakage protection & Inclusion of Consumption for incentives

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Option 1: Border related approaches

Installation
coverage for
production of
materials

Liabli for one
allowance per tone
of CO2 emitted

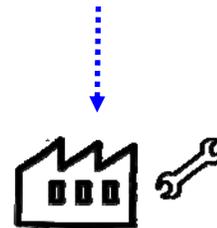


Carbon leakage
protection

Charge on import

Reimburse export

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



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

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

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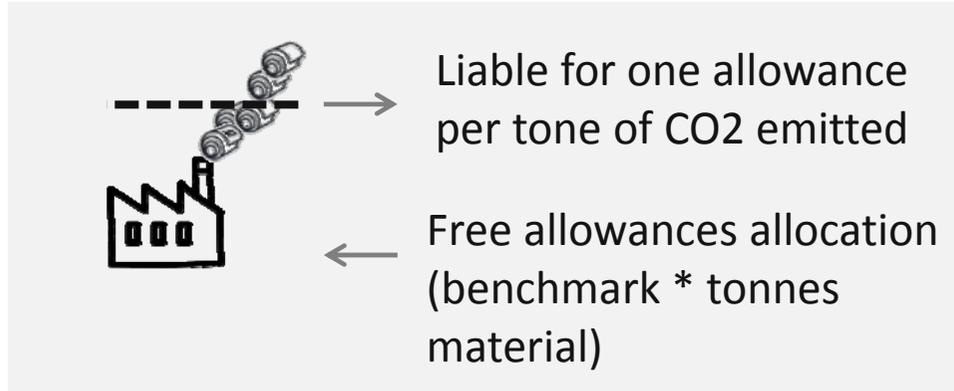
Objectives and objections to different border related approaches

- Provide incentives for other countries to pursue climate policy
-> Trade repercussions, no certainty for climate friendly investments
- Additional protection interests
-> Not necessary - pricing schemes comprise exemptions/free allocation
- **Facilitate removal of exemptions (e.g. of free allowance allocation)**
-> Ensure full carbon price pass-through / incentives along value chain
-> Avoid discrimination against foreign producers (WTO compatibility)

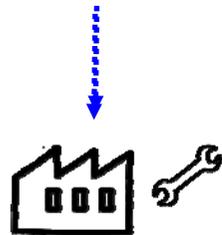
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Option 2: Inclusion of Consumption of Basic Materials in Carbon Pricing

Installation coverage for production of materials

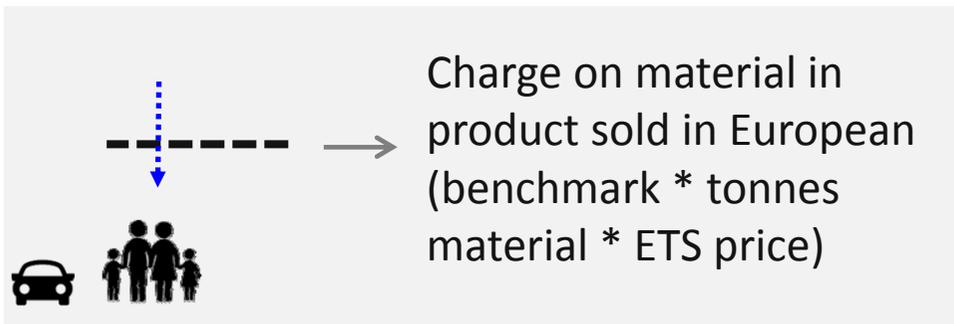


Incentive for climate friendly material production and carbon leakage protection



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

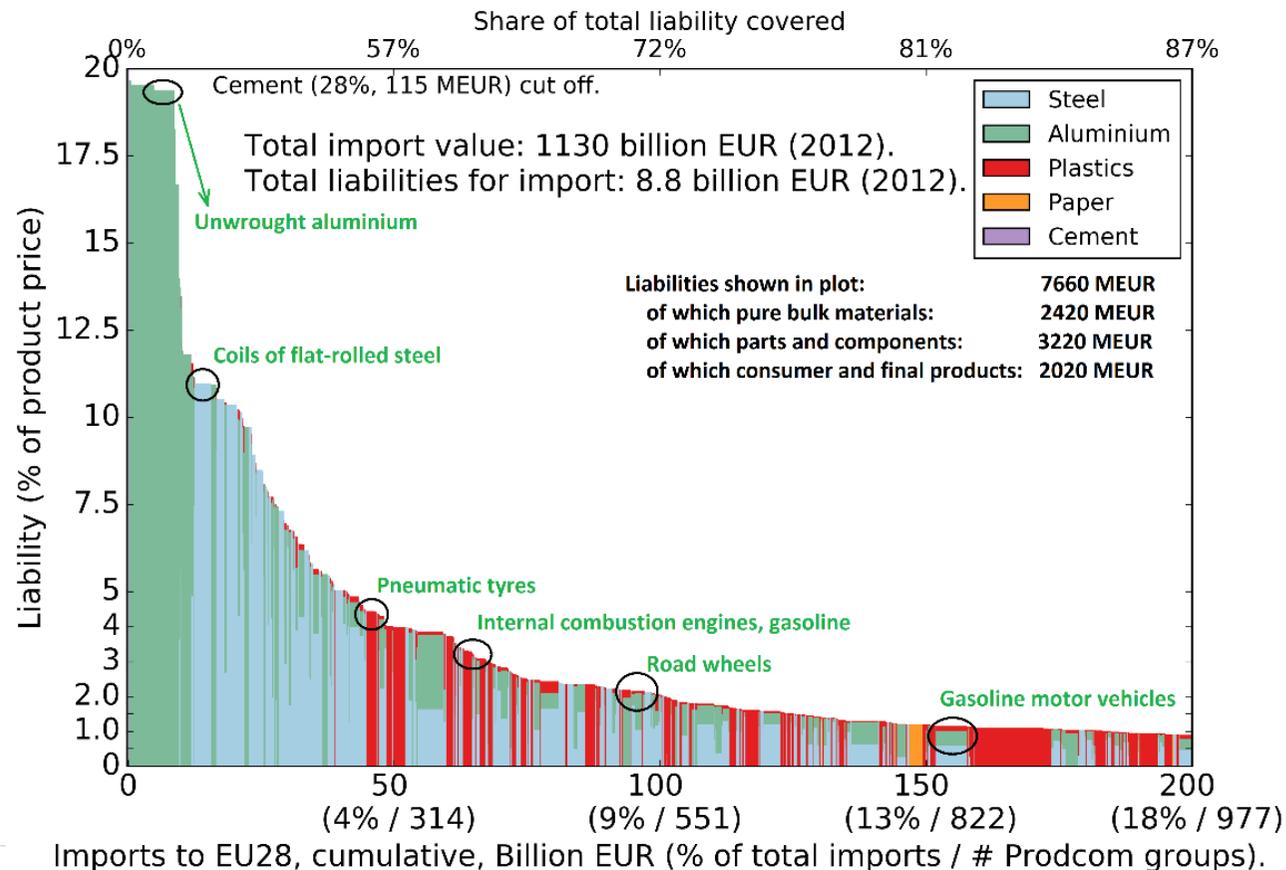
Consumption charge for final consumers



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

Consumption charge at benchmark, irrespective of origin: good side of WTO

- **Steel „consumed“ in Europe: 144 Mt**
 - 77 Mt domestic produced (48%), 67 Mt imported (direct & indirect)
- **Consumption charge**
 - $1,8 \text{ tCO}_2/\text{t steel} * 30 \text{ Euro}/\text{tCO}_2 = 54 \text{ Euro}/\text{t Steel}$, Total: 7,7 billion Euro



Topics for cooperation on Inclusion of Consumption in carbon pricing:

- Develop shared understanding of how to achieve climate objective
- Harmonize design to avoid complexities and non-tariff barriers
- Pool data for better benchmarks and thus stronger incentives

Additional topics for cooperation in case of border adjustment

- Agree on legal basis (Art. III or XX GATT)
- Scope (direct, indirect emissions)
- Only imports or also exports, how far down the value chain?

- Trade of materials motivates free allowance allocation, mutes price
- Three perspectives to reinstate full carbon price (while avoiding carbon leakage)
 0. Converging carbon prices + phase out exemption/free allocation: **Slow**
 1. Shift from auction to border adjustment: **Politically difficult**
 2. Additional consumption charge at benchmark: **Suitable for basic materials**
- Inclusion of consumption in Emission Trading
 - Reinstates full carbon price signal for all decision makers
 - As consumption charge at benchmark level on good side of WTO
 - Supports market based approach to achieve climate objectives
- International cooperation could help
 - Align objectives & approach to avoid repercussions for/from trade
 - Facilitate effective policies in materials sector (Paris Climate Agreement)

Thank you for your attention!



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