
Inclusion of Consumption of carbon intensive materials in emission trading systems

An option for carbon pricing post 2020

1

Motivation

2

The mechanism

3

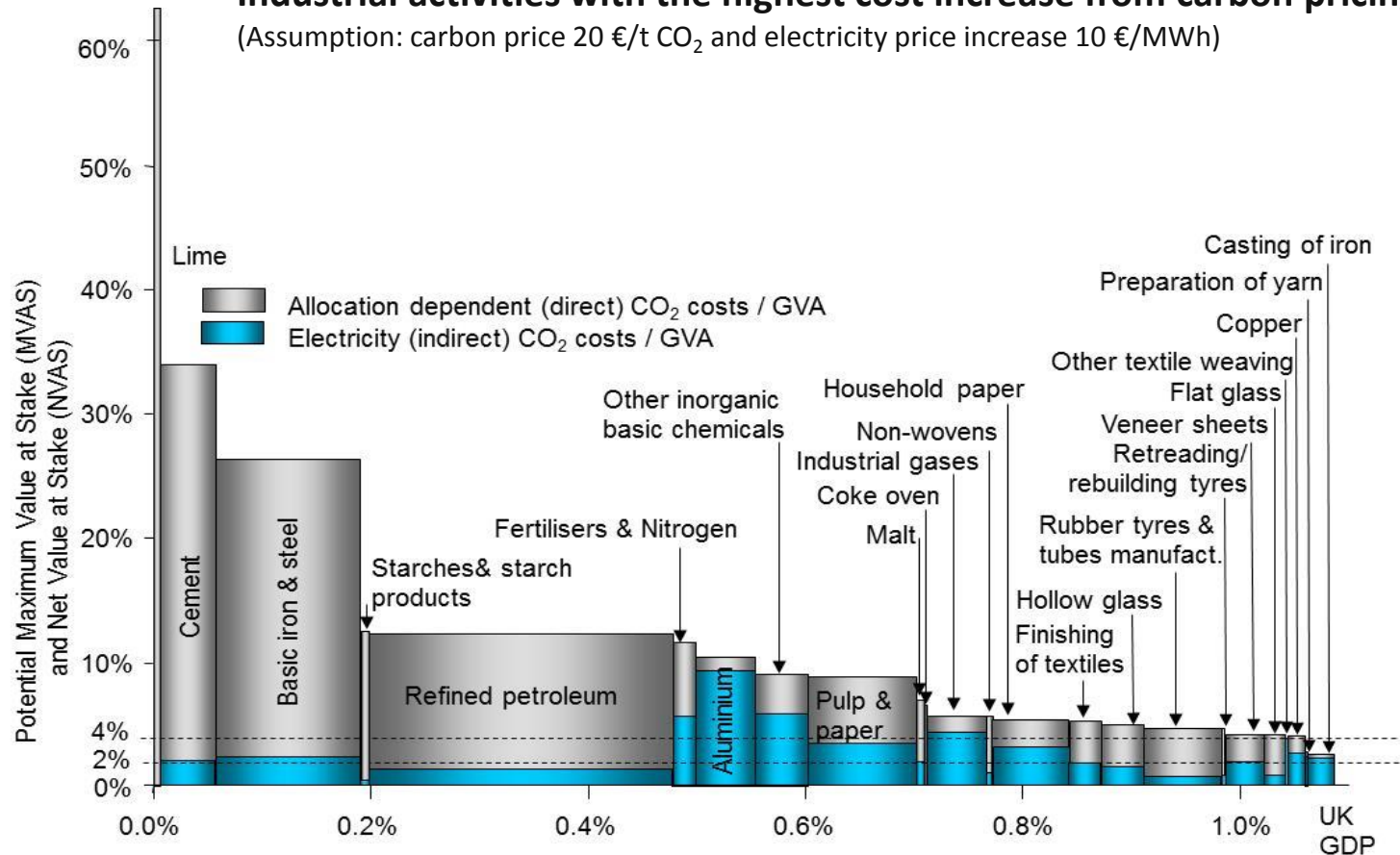
Technical Implementation

4

Conclusion

Industrial activities with the highest cost increase from carbon pricing

(Assumption: carbon price 20 €/t CO₂ and electricity price increase 10 €/MWh)



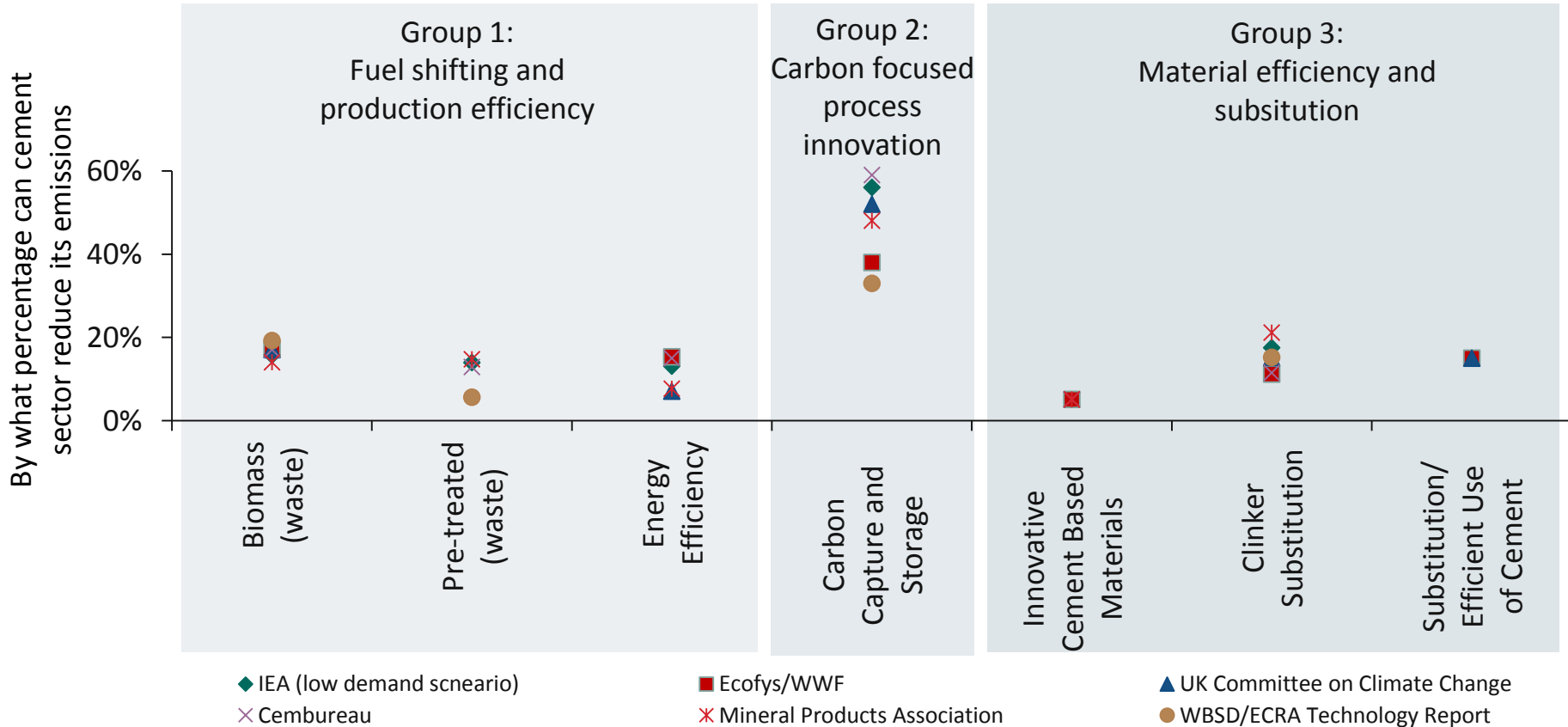
Production of cement and steel alone accounts for 38% of European industry emissions:

- ➔ Important to realize mitigation opportunities of selected carbon intensive materials
- ➔ Production and use of these materials justifies focused attention

1.

Three groups of emission reduction opportunities for carbon intensive materials

Example Cement






- ➔ Portfolio of mitigation options to achieve deep decarbonisation (G7) with 80-95% reductions (EU)
- ➔ Similar picture for other material sectors like steel
- ➔ To date only progress on Group 1: fuel shifting and some process efficiency
- ➔ Group 3 largely unexplored (materials efficiency and substitution) and no progress in Group 2 (CCS)

Inclusion of Consumption of carbon intensive materials in emission trading systems

1.

Carbon pricing can in principle create incentives for all mitigation opportunities

Group	Emissions reductions through	Role of carbon pricing	Global
			Full Auctioning
1	Fuel shifting and production efficiency	Incentives for improving carbon efficiency of materials production	
2	Carbon focused process innovation	Consistent mechanism including clarity on costs allocation	
3	Material efficiency and substitution	Makes efficient material use / low carbon material competitive	

- ➔ With global converging carbon pricing, all allowances can be auctioned also in materials production.
- ➔ In such a scheme carbon price creates the full incentive for all Groups of mitigation options.

Note: Additional need for strategic (public) innovation investment and programs or policies to overcome inertia (*outside of scope of this presentation*).

1.

Free allocation for carbon leakage protection limits incentives from carbon price

Group	Emissions reductions through	Role of carbon pricing	Basis of free allowance allocation				Incentive:
			1. Historic emissions	2. Historic production and benchmark	3. Recent production and historic intensity dynamic	4. Recent production and benchmark	
1	Fuel shifting and production efficiency	Incentives for improving carbon efficiency of materials production					Full
2	Carbon focused process innovation	Consistent mechanism including clarity on costs allocation					Some
3	Material efficiency and substitution	Makes efficient material use / low carbon material competitive					Small

No matter how allowances are allocated for leakage protection, significant distortions remain:

- If based on historic emission (intensities) discourages efficiency improvements
-> Can be improved with use of benchmarks (2 & 4)
- If based on historic output, then allocation can deviate significantly from emissions
-> Can be avoided with use of recent production volumes (3 & 4)
->But further limits price pass through for materials efficiency & substitution (3 & 4)
- If consumers don't pay carbon, no business case for large scale use of CCS type technologies

1.

Adding inclusion of consumption can restore the carbon price and incentives

Group	Emissions reductions through	Role of carbon pricing	Basis of free allowance allocation				
			Historic emissions	Historic production and benchmark	Recent production and historic intensity dynamic	Recent production and benchmark	Recent production and benchmark + IoC
1	Fuel shifting and production efficiency	Incentives for improving carbon efficiency of materials production					
2	Carbon focused process innovation	Consistent mechanism including clarity on costs allocation					
3	Material efficiency and substitution	Makes efficient material use / low carbon material competitive					

- ➔ Free allocation based on recent production and benchmark eliminates price pass through.
- ➔ Can be corrected with a consumption charge on carbon intensive materials at benchmark rate.
- ➔ Thus full incentives for Mitigation Opportunities in Group 2 and 3 are restored.

1

Motivation

2

The mechanism

3

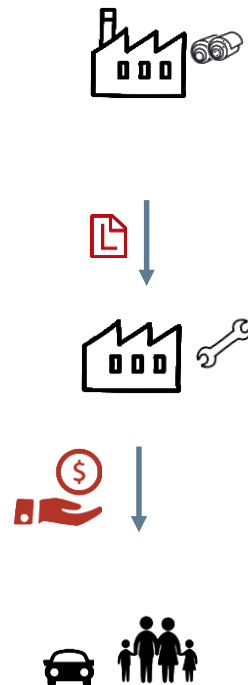
Technical Implementation

4

Conclusion

2.

The mechanism and its incentives



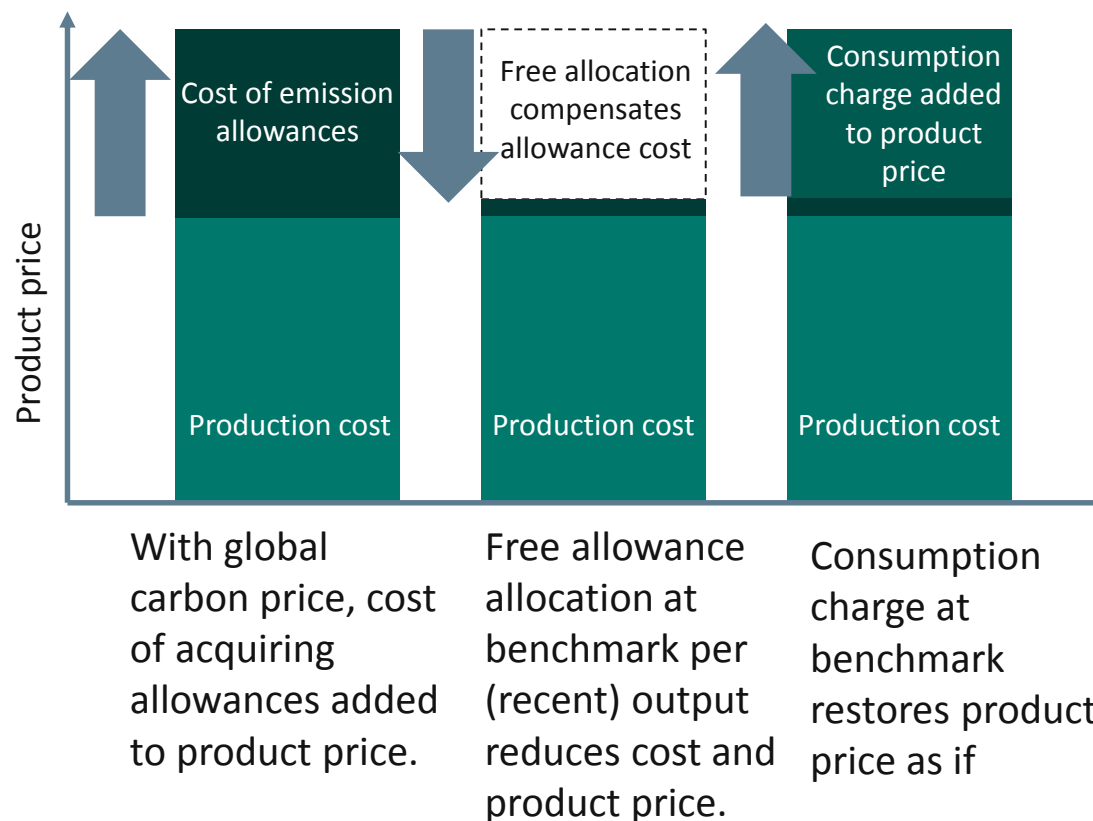
Process action	How IoC strengthens incentives for mitigation
Creation of liability per ton of e.g. steel (benchmark rate times carbon times ton of steel)	Group 2: Credible perspective for carbon capture: extra costs allocated to consumers, not (cross-) subsidized
Passing on liability	Group 3: Increases profitability of materials efficiency and substitution with charge on carbon intensive materials
Liability suspended	
Release for consumption: Suspended liability becomes due	
Companies can inform consumers about level of charge to enhance awareness	Information on embedded carbon engages consumers

➔ Follows model of existing consumption charges (excises) on fuel, tobacco, alcohol etc.

➔ Restores incentive for mitigation opportunities in group 2 and 3.

2.

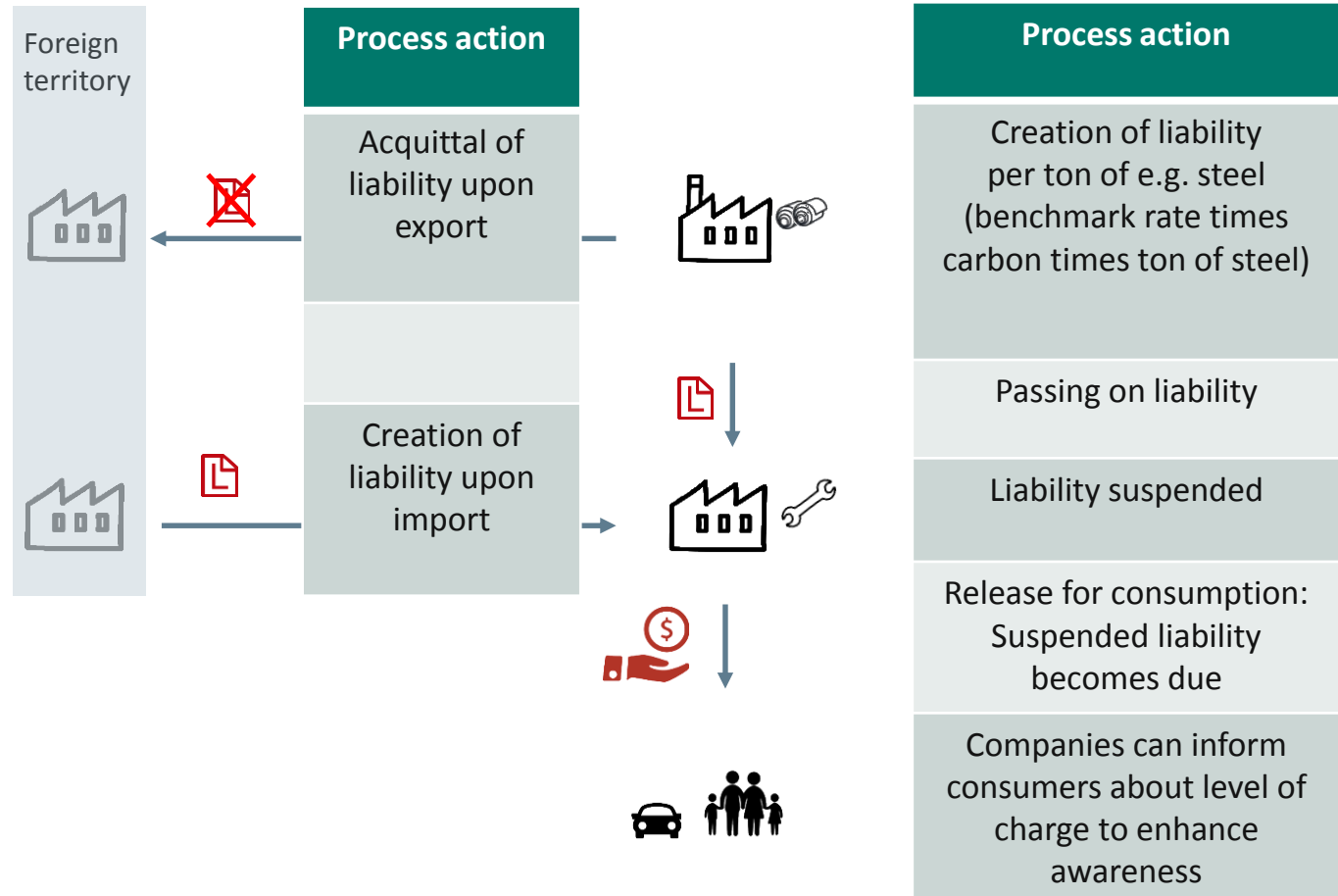
No double charging (illustrative example cement)



- ➔ Level playing field maintained, as charge applies to all steel (irrespective of origin).
- ➔ Consumption charge volume equivalent to revenue if allowances are auctioned to industry.
- ➔ Consumers face same cost as in world of global carbon price and full auctioning.

2.

The case of import and export



- ➔ No differentiation how and where product was produced
- ➔ No effect on competitiveness of the European steel sector because imports are charged as well

2.

The effect of combining benchmark based allocation with IoC

- Ensures full carbon price incentive for all groups of mitigation options.
- Clarity on allocation at full benchmark level because no need to trade off with incentive in value chain
 - ➔ Enhances long-term investment framework
- No competitive disadvantage for companies because all competitors (also close substitutes) are treated the same.
- With free allocation at full benchmark level robust leakage protection also for high carbon prices and therefore long-term clarity for decarbonisation.

1

Motivation

2

The mechanism

3






Technical Implementation

4

Conclusion

3.

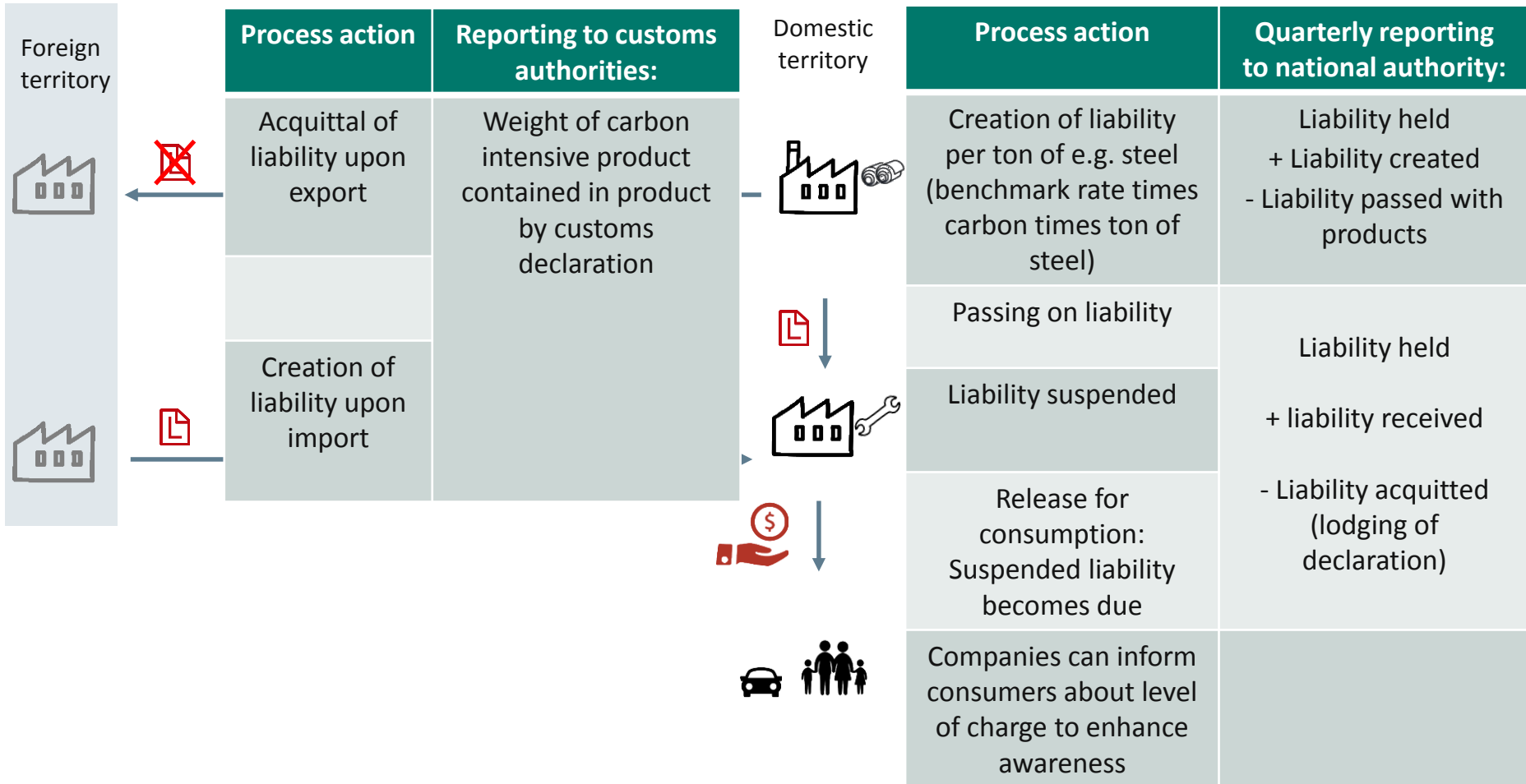
Administrative Implementation: Domestic case

Domestic territory	Process action	Quarterly reporting to national authority:
	Creation of liability per ton of e.g. steel (benchmark rate times carbon times ton of steel)	Liability held + Liability created - Liability passed with products
	Passing on liability	Liability held
	Liability suspended	+ liability received
	Release for consumption: Suspended liability becomes due	- Liability acquitted (lodging of declaration)
	Companies can inform consumers about level of charge to enhance awareness	

➔ Reporting to existing national authorities, e.g. BAFA (DE), Environment Agency (UK)

3.

Administrative Implementation: International case



➔ Reporting on imports and exports embedded in customs procedure

Domestically:

- Mandatory for all producers of cement and steel sector (plus close substitutes)
- Producers of subsequent products can self-select to participate so that liability passed on them is suspended: no need to pay charge up-front and option to waive charge for exports.

Internationally:

- Trade categories defined in which consumption charge is relevant (e.g. price increase relevant for choices of intermediary and final consumption choices)
- For products in these trade categories, importers need to report and incur liability for weight of carbon intensive materials in product

On good side of WTO Law

- charge imposed on **all steel, cement etc. consumed within the territory irrespective of their origin**
- charge does **not distinguish** between production methods
(**independent of specific carbon footprint**)
- ➔ **No discrimination** against like imported products
- ➔ Incentive for low-carbon materials and efficient material use in all products served to domestic consumers

IoC as integral part of EU ETS for the following reasons:

- Environmental objective: Restoring incentives for mitigation options of group 2 and 3 of EU ETS that are lost with free allocation as leakage protection.
- Revenues used to substitute auction revenues to fund climate action.
- Revenues collected partially used to acquire allowances at the auction platforms for net carbon imports.
- Technical points: charge calculated according to the benchmark used for free allocation and charge based on recent months average carbon price.

➔ IoC qualifies as environmental regulation and can be implemented as part of EU ETS Directive, thus public acceptance in MS and qualified majority voting in Council.

Source: Ismer and Haussner, Inclusion of Consumption into the EU ETS: The Legal Basis under European Union Law, RECIEL, forthcoming.

Low operating costs of typical consumption charges like

- Excise duties
- VAT

Reasons to anticipate that the inclusion of consumption will have similar low operating costs:

- Design of the scheme follows the mechanism of excise
- Verification and compliance simplified because of fewer fraud incentives: charge constitute limited fraction of product price and is never reimbursed (unlike VAT).

1

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2

The mechanism

3

Technical Implementation

4

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- 2050 Emissions reduction objectives can only be achieved with portfolio of mitigation options
- Benchmark based allocation **plus IoC activates carbon price throughout the value** chain as it reinstalls incentives for mitigation options in all three groups
- Consumption charges on the good side of WTO law
- Low administrative costs as design similar to other consumption charges (excise and vat)

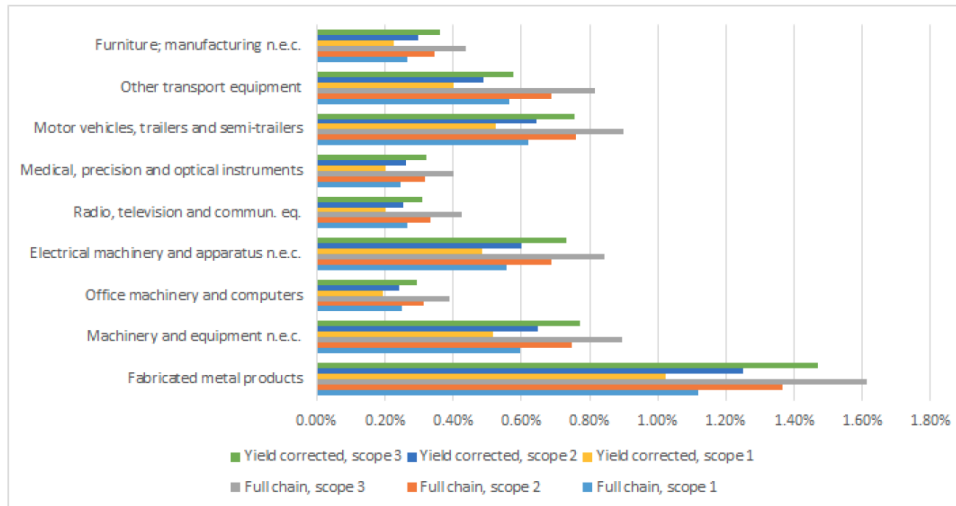
Thank you for your attention!



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Effect on consumers

- Incremental costs of consumption charge represents only small cost increase to consumers in final product price



Relative price changes for the 9 groups of manufactured goods in the CREEA MRIO model, scope: EU28, reference year: 2007.

Source: Pauliluk et al.

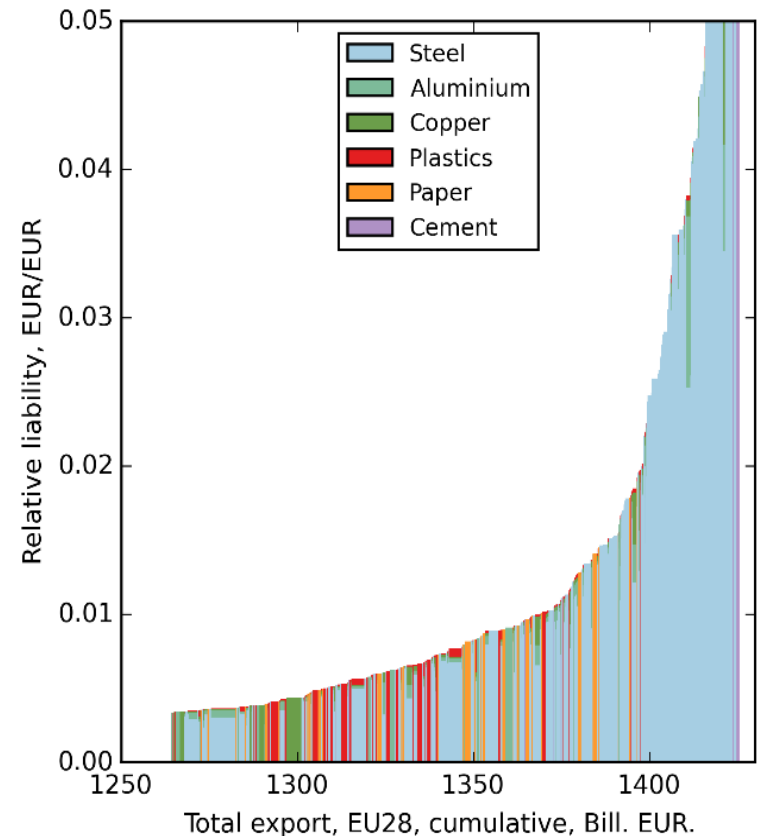
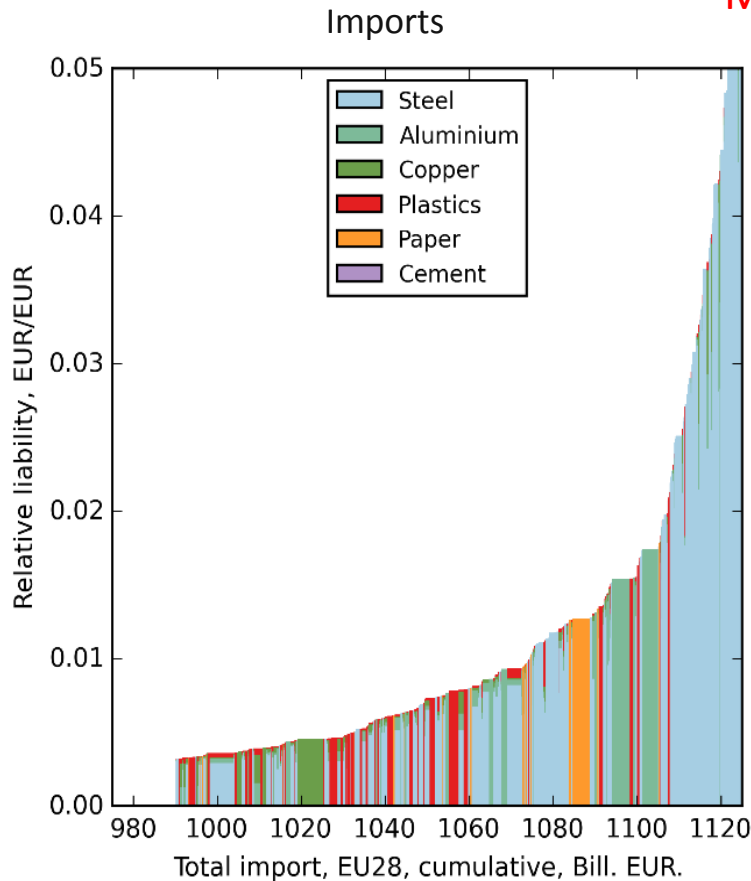
➔ **IoC provides funds for financing climate action without imposing a significant burden on final consumers and without damaging European Competitiveness**

De-minimis approach – Imports and Exports to be covered

Imports into and exports from the EU28 in 2012, cumulative, sorted by relative liability or price change (EUR/EUR) (plot with cutoff at 0.01EUR/EUR)

• 4.

Mirror pictures



Source: Pauliuk et al, 2015.