

*REKK – Regional Energy Forum – The future of carbon pricing*

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## *Border Carbon Adjustment Mechanism*

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## 1

# Basic materials = 25% of global CO2 emissions, 16% of EU GHG emissions

- Climate neutrality by 2050 can only be achieved with the help of the basic materials sector
- Focus on materials contributing most to emissions and their competitors: Steel, Cement-clinker, Plastic (HVC), Fertilizer (Ammonia), Aluminum
- Uncertainty about policy developments inhibit investments central to industrial value chains

**Percentage contribution of various basic materials in global CO2 emissions (2014)**

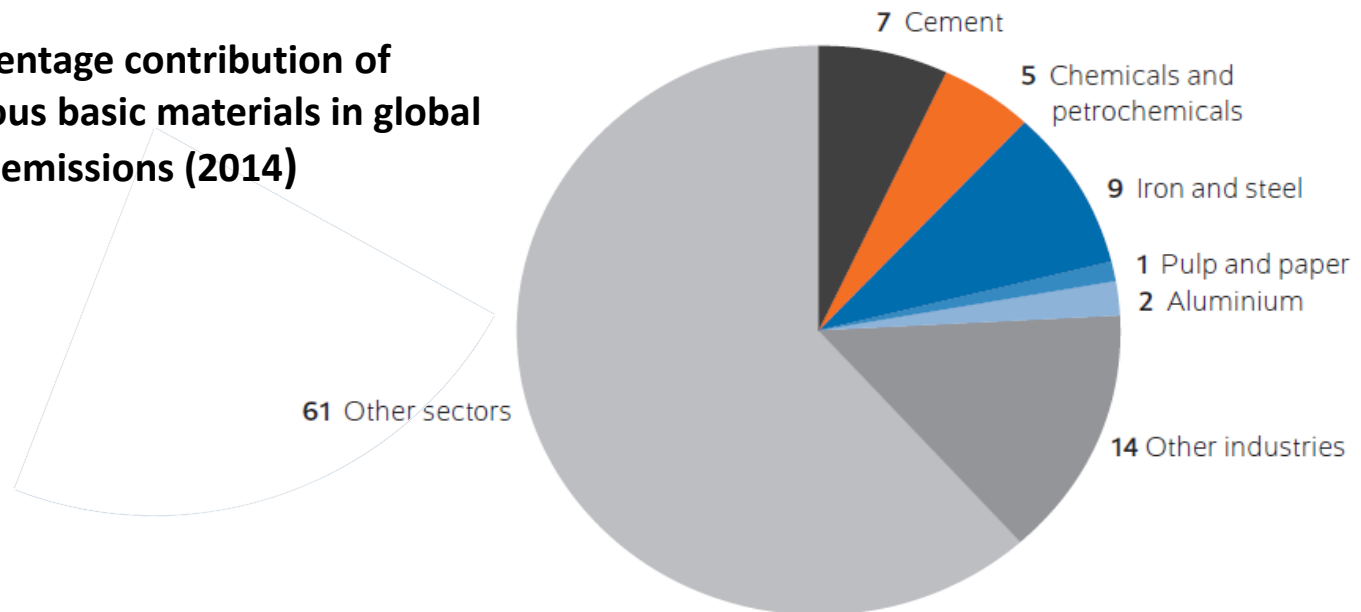
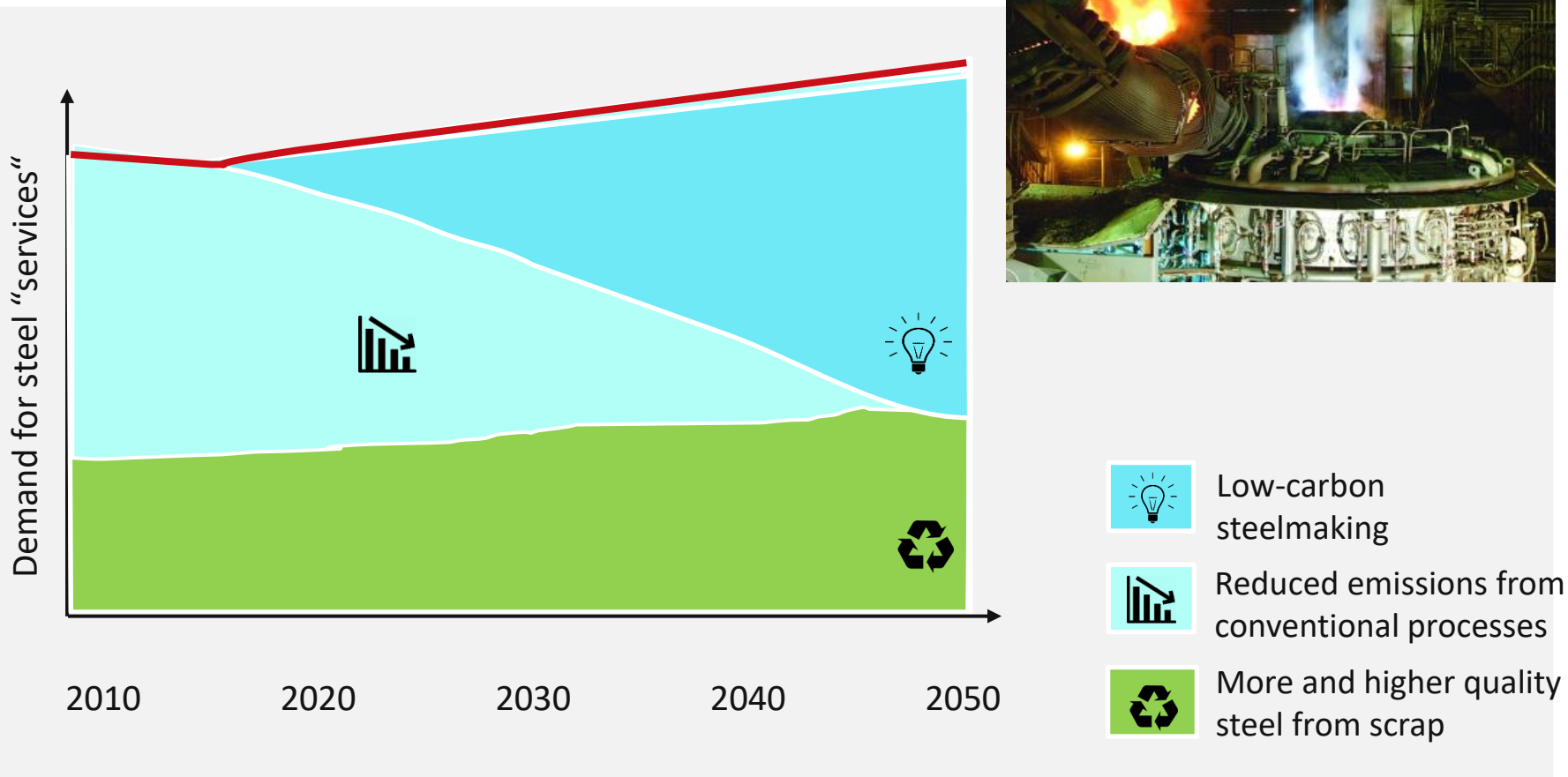
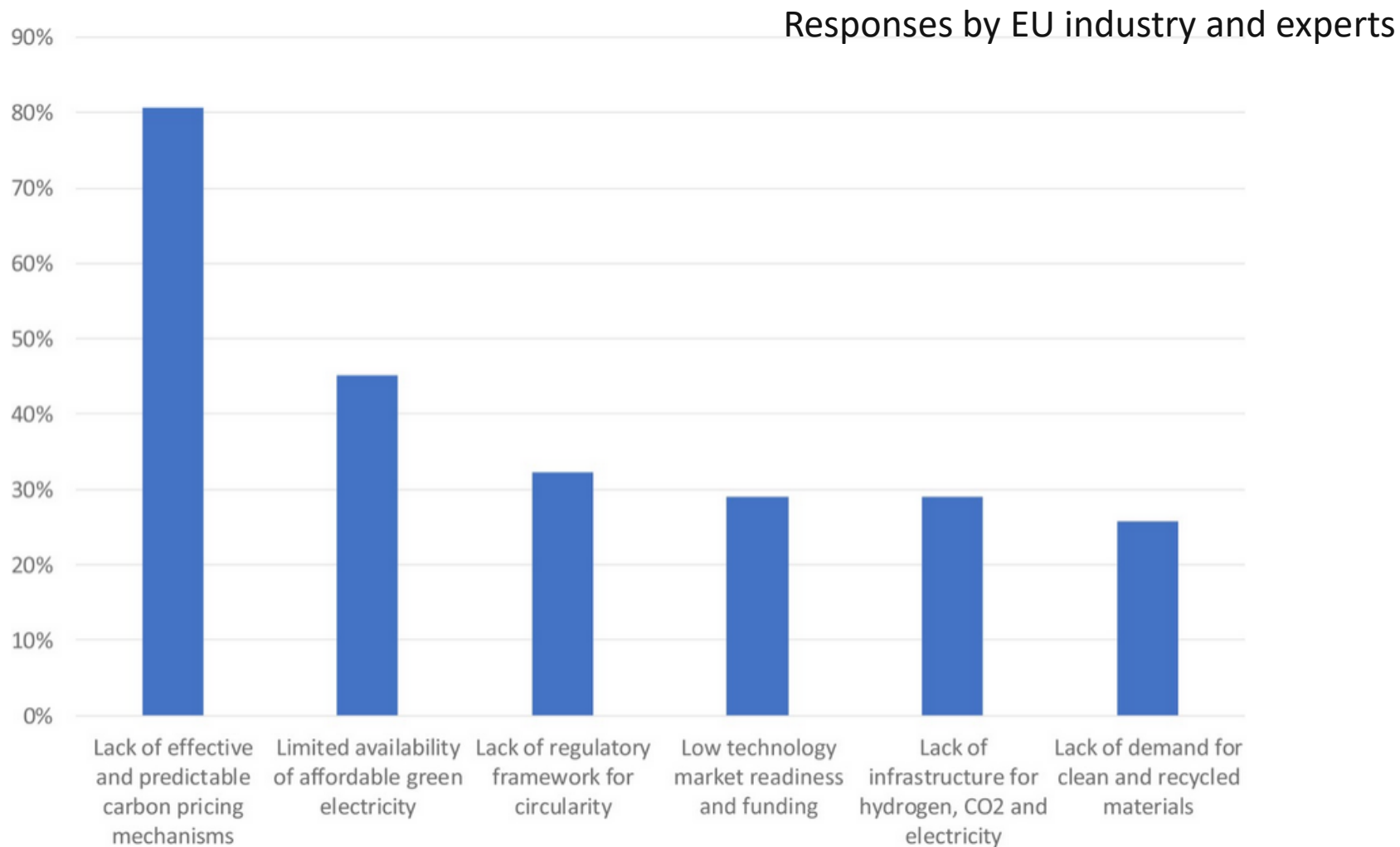


Illustration for European steel sector (no numerical simulation)

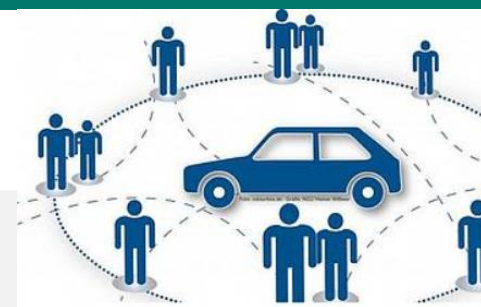
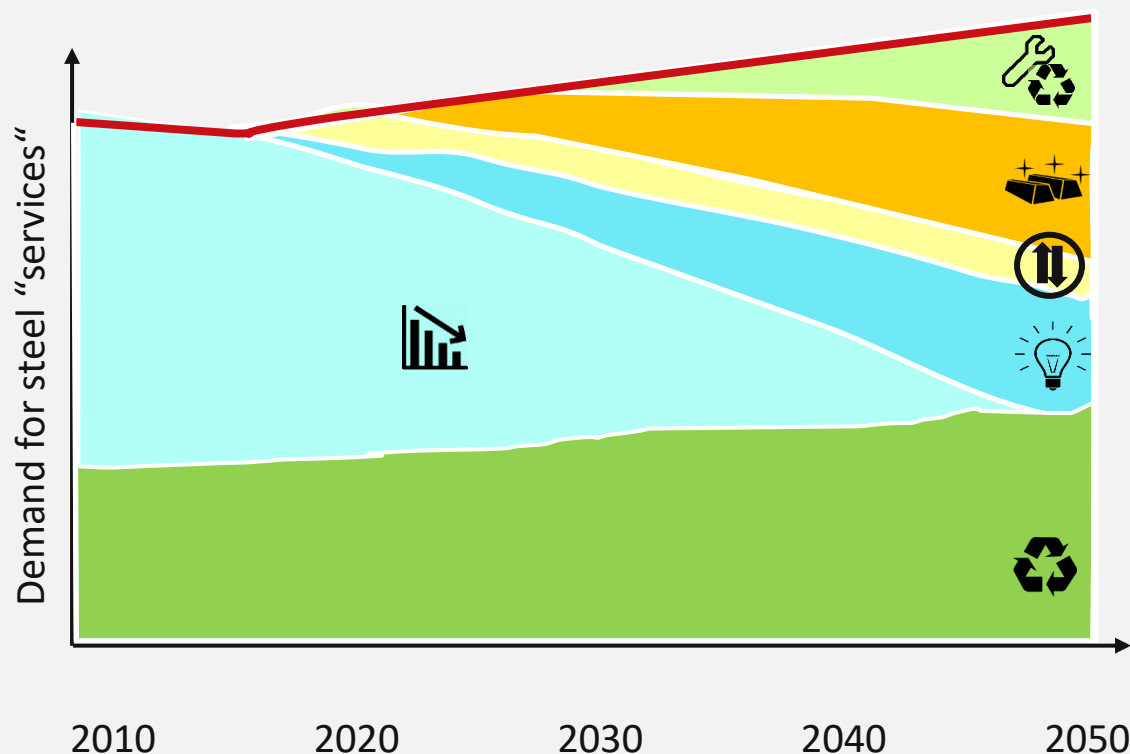


## Reported challenges for transition to climate neutrality in basic materials



Chiappinelli e.a. (2021) A green COVID-19 recovery of the EU basic materials sector: identifying potentials, barriers and policy solutions, Climate Policy, DOI: 10.1080/14693062.2021.1922340

Illustration for European steel sector (no numerical simulation)



Share, repair, reuse



Higher value steel/ less steel in products/ more efficient manufacturing



Material substitution



Low-carbon steelmaking

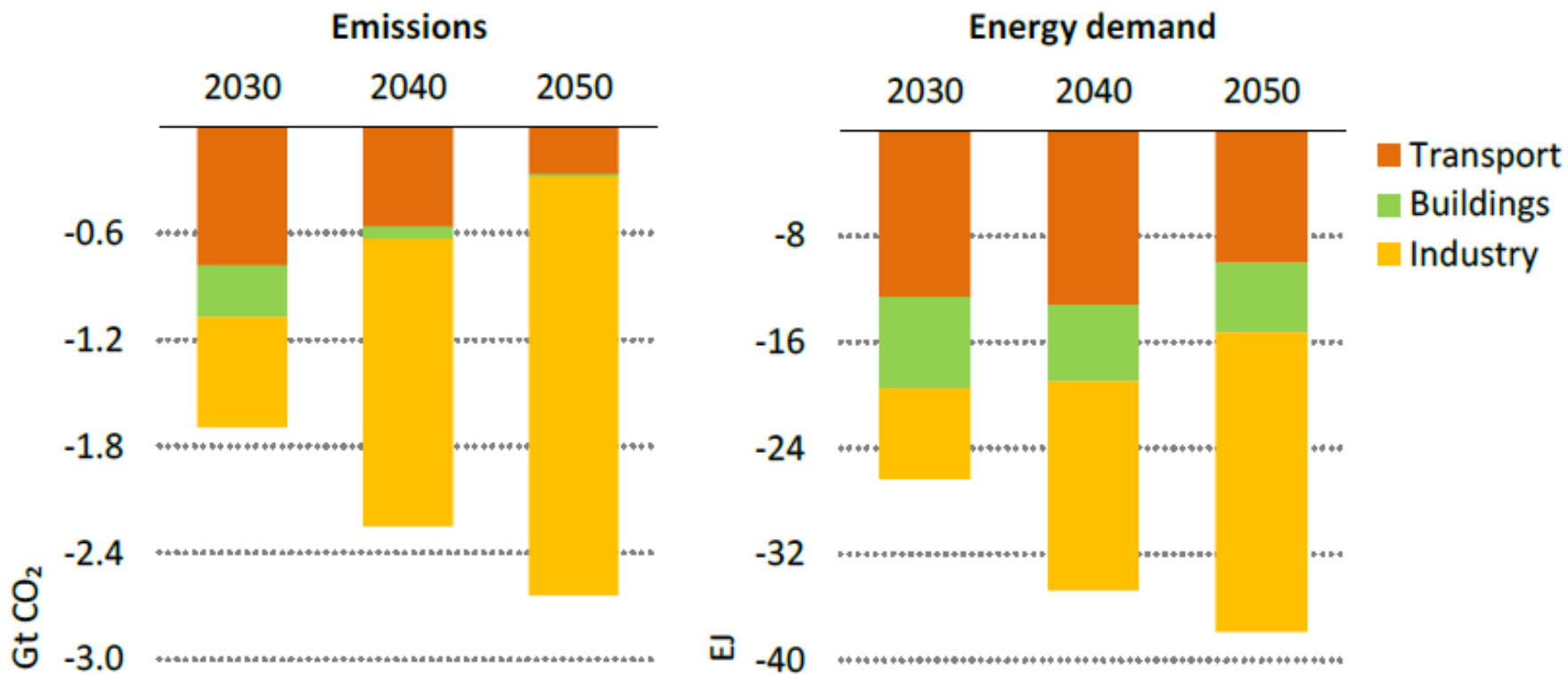


Reduced emissions from conventional processes



More and higher quality steel from scrap

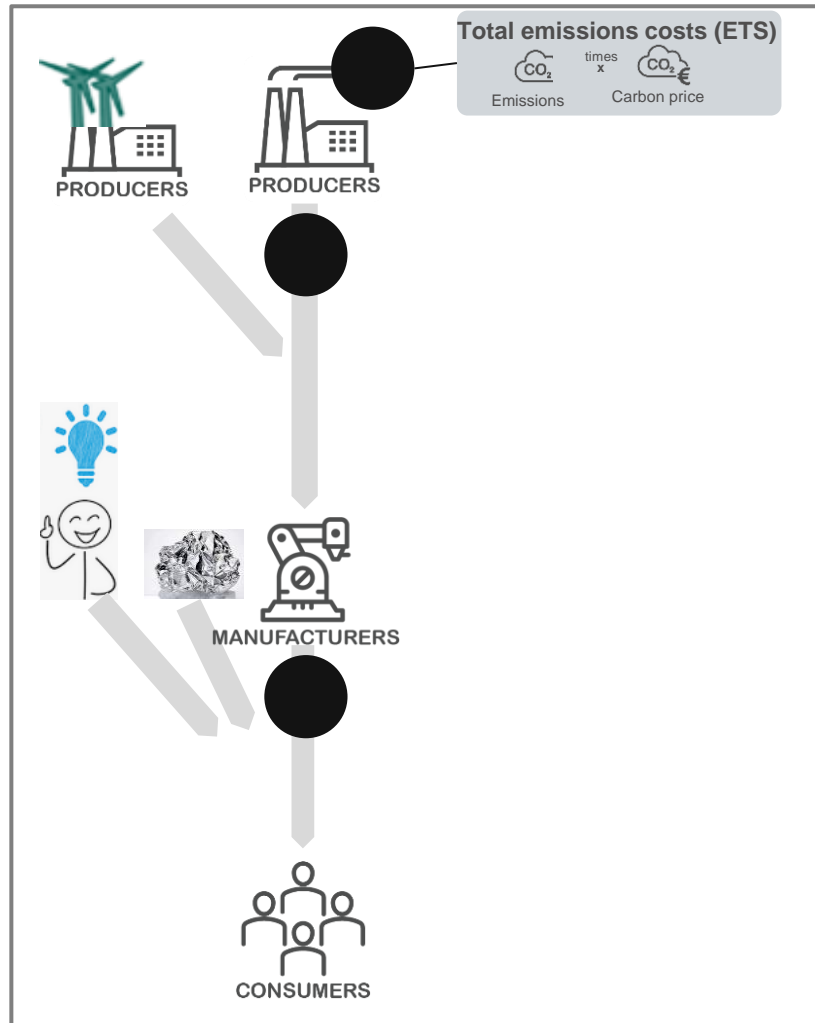
## Industry energy demand projected to be most affected by demand reductions from behavioral changes and material efficiency



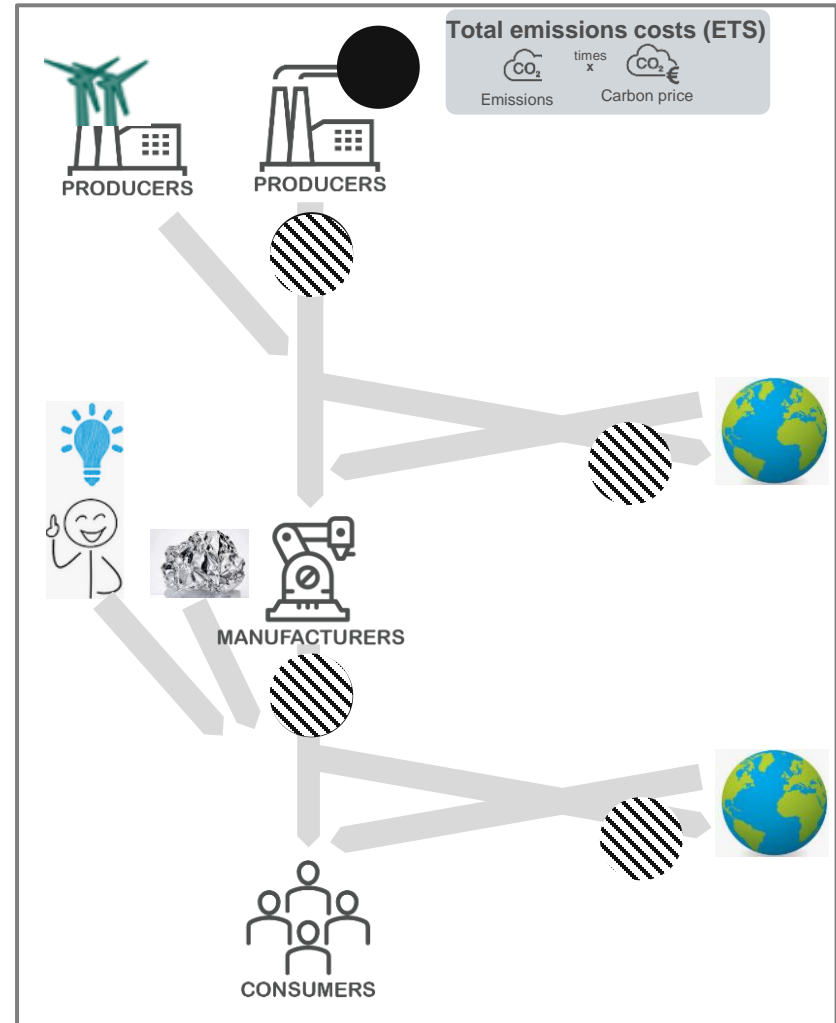
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# Important role of carbon pricing in industry ... ... but currently limited effectiveness

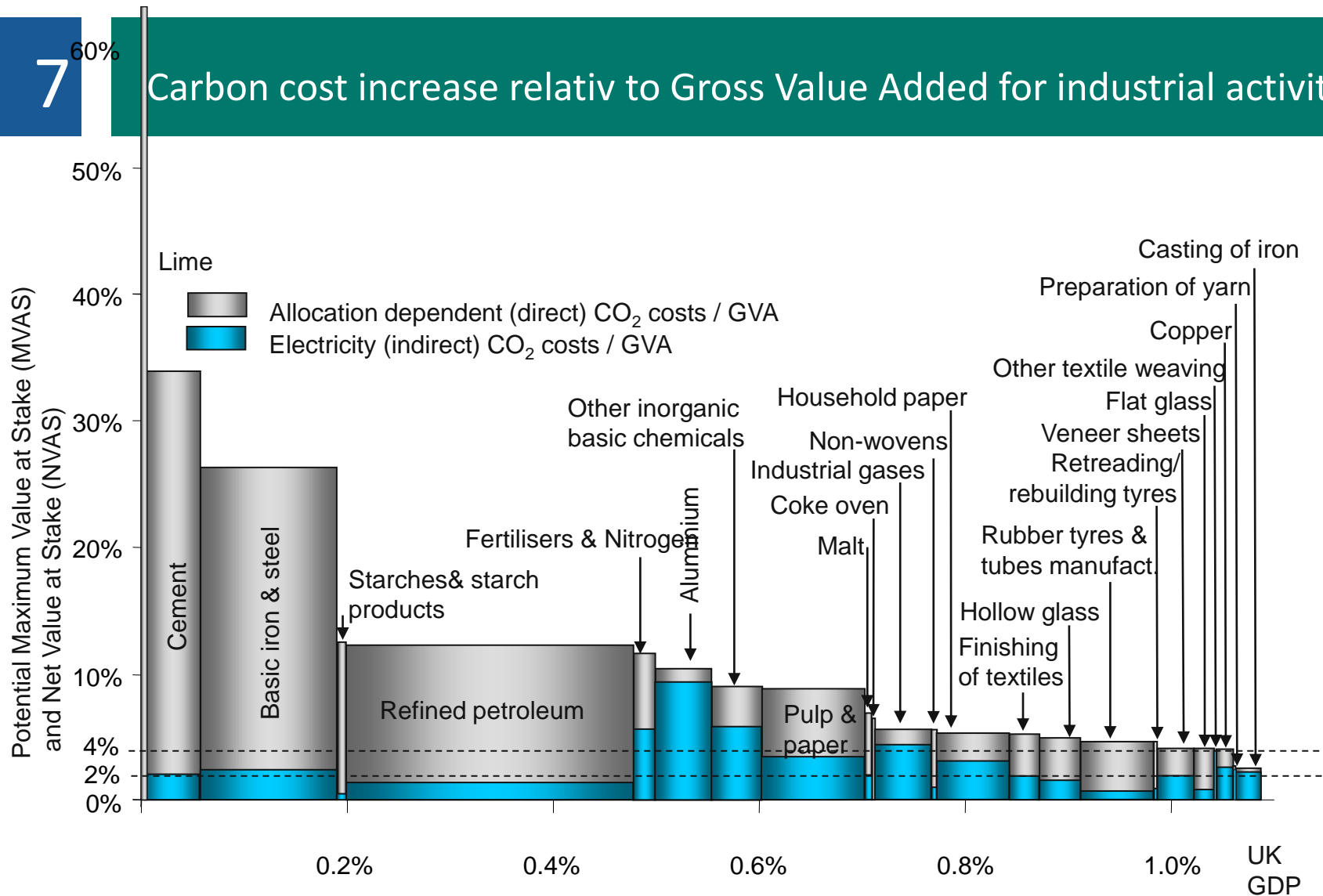
## Desired incentives from carbon pricing



## Carbon pricing & and international trade



# Carbon cost increase relativ to Gross Value Added for industrial activities

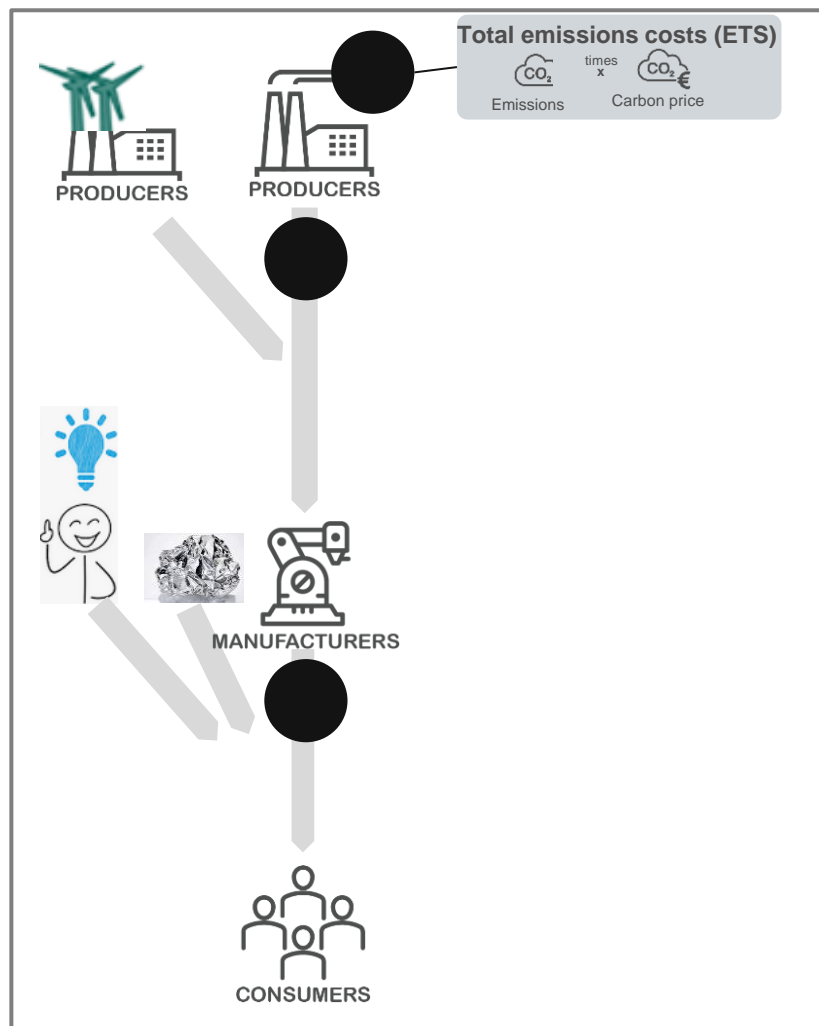


Industrial activities with the highest cost increase from carbon pricing, and their contribution to UK GDP, assumed carbon price increase 20 €/t CO<sub>2</sub>, electricity price increase 10 €/MWh.

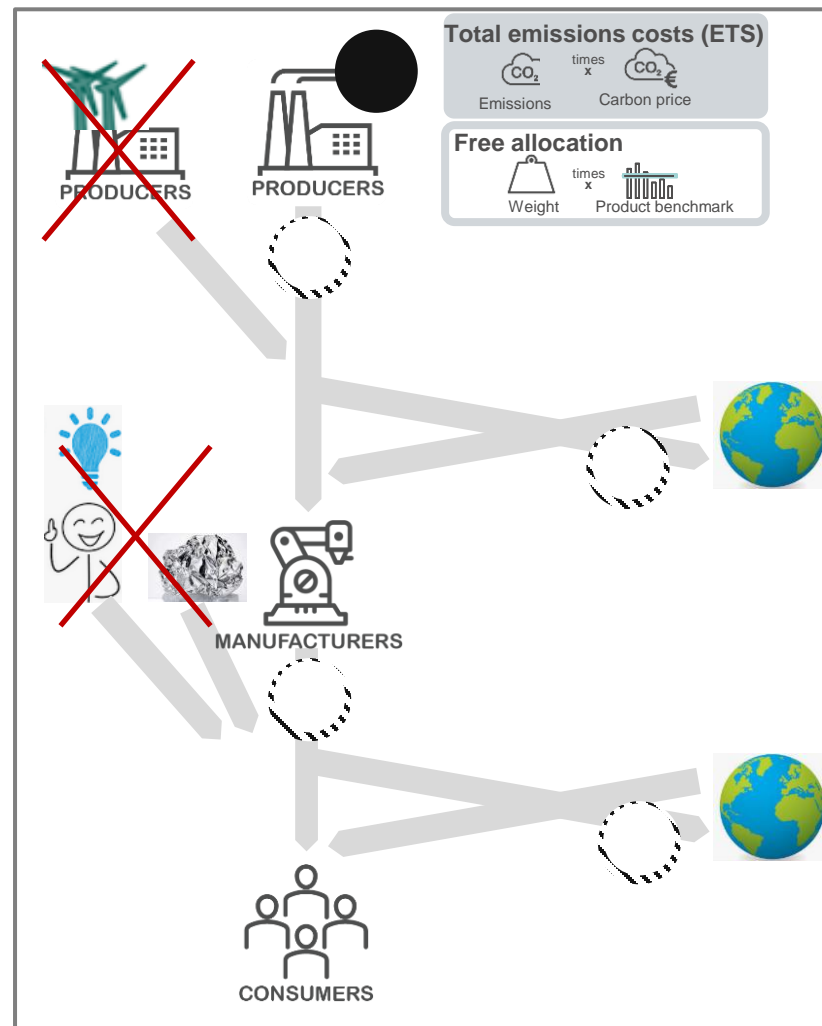
Only sector with more than 0.5 Mill. tonnes CO<sub>2</sub>/EU27 added by Commission: Other organic chemicals (NACE 24)



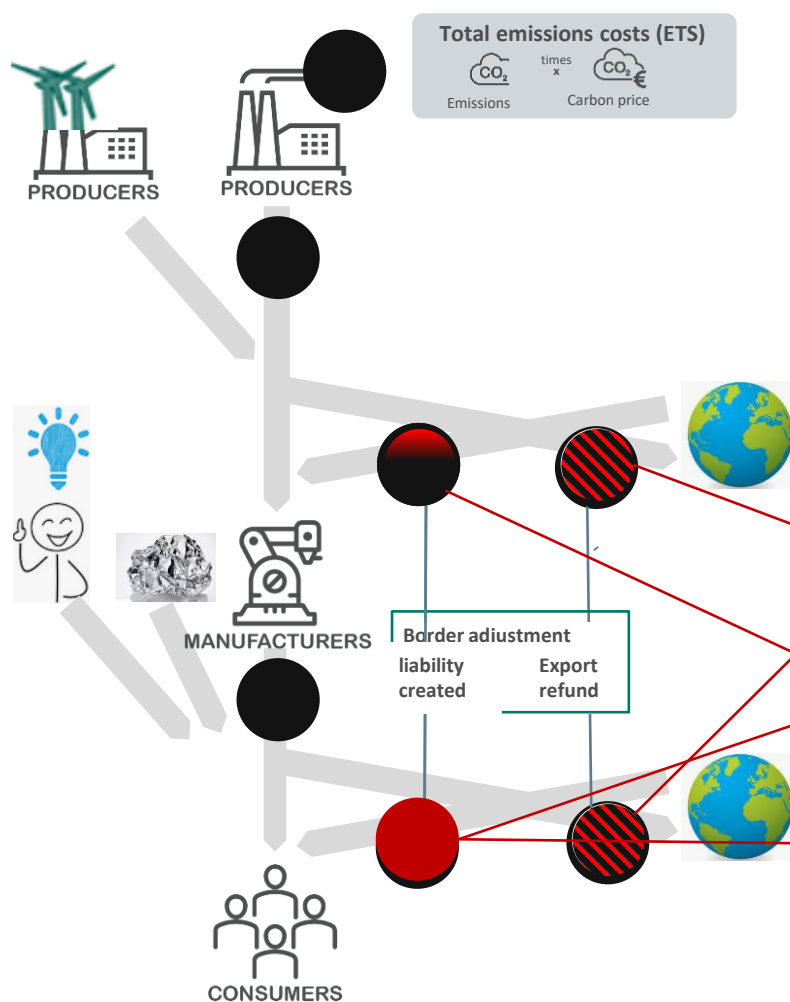
## Desired incentives from carbon pricing



## Carbon pricing &amp; free allowance allocation



# Can a border carbon adjustment based on reported carbon emissions deliver an effective carbon price and avoid carbon leakage risks?



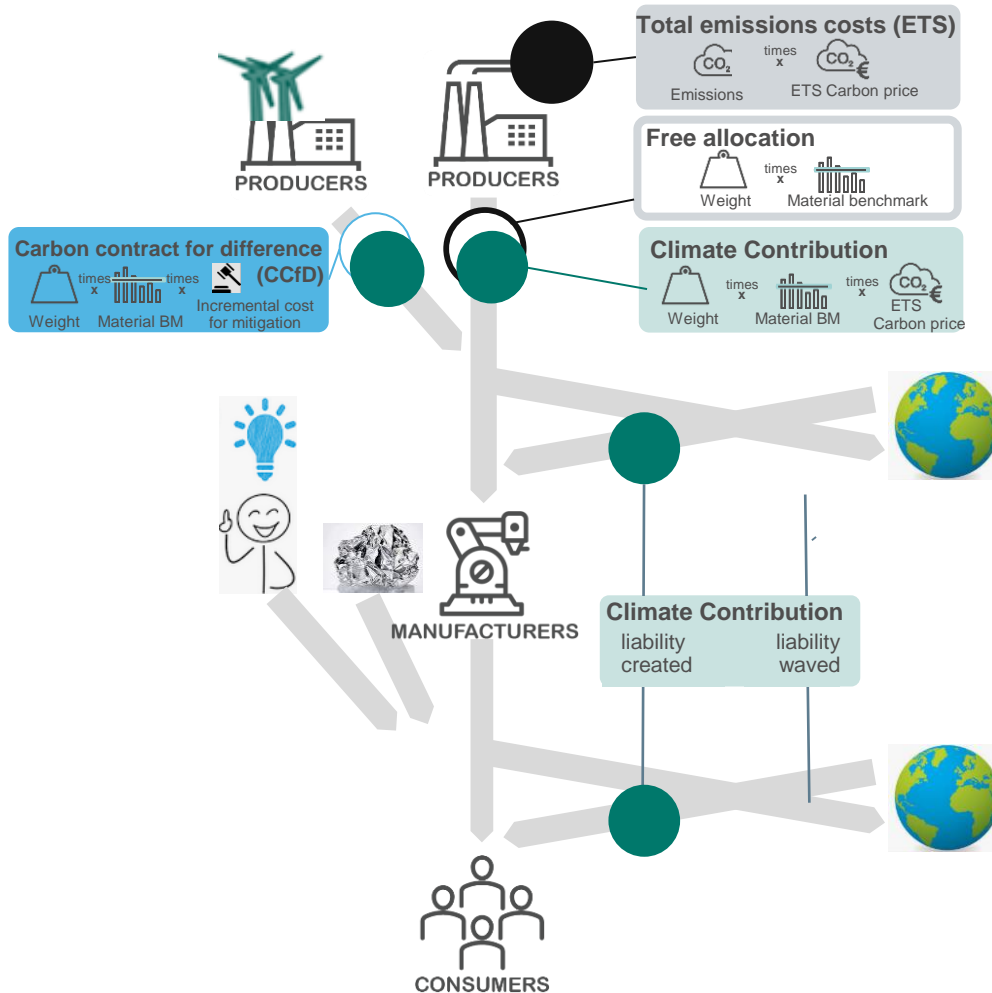
## Theoretical benefits

- Shift to full auctioning makes carbon price effective for all mitigation options
- Avoids carbon leakage risks

## Limitations in practice

1. Legal and economical constraints may inhibit refunds of carbon costs
2. Resource shuffling using existing variation of energy/production
3. Administrative complexity may limit the coverage of imports

# How can border carbon adjustment deliver an effective carbon price by combining several elements ?



## Domestic effects

- Incentives for carbon efficient production
- Incentives for material efficiency and substitution, resources for incremental costs of climate neutral production
- Incentive for climate neutral production
- Avoids carbon leakage risks

## International opportunities

- Avoids WTO uncertainty and controversy of traditional BCA approach
- Provides policy example and financial resources for international cooperation
- Compatible with approaches like minimum carbon price, carbon clubs ...



HOME / PROJECTS / Climate Friendly Materials Platform

## Climate Friendly Materials Platform



Radboud University



WiseEuropa



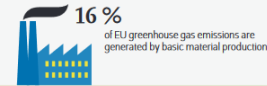
### Requirements for enabling green transitions

1. Regulations for driving climate initiatives
2. Finance mechanisms to support adoption of green technologies and processes
3. Policy framework for guiding low-carbon transitions

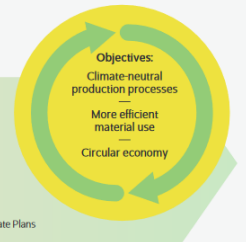
[www.diw.de/snapfi](http://www.diw.de/snapfi)

## Green Deal for industry: a clear policy framework is more important than funding

### A package of measures is necessary for climate-neutral basic material production



- |   |  |
|---|--|
| <p><b>1. Make climate-neutral options economically viable</b></p> <p>Climate contribution for effective carbon prices</p> <p>Carbon Contracts for Differences to hedge against regulatory risks</p> | <p><b>3. Further framework conditions</b></p> <p>Provide strategic infrastructure</p> <p>Make public procurement sustainable</p> <p>Frameworks for circular economy and material efficiency</p>  |
| <p><b>2. Ensure industry implements climate-neutral options</b></p> <p>Forward-looking reporting in</p> <p>Ban on sales of basic materials from emission-intensive processes</p>                    | <p><b>4. Ensure timely and coordinated implementation of frameworks by the government</b></p> <p>Define a target: how much climate-neutral production by 2030</p> <p>Integration in the National Energy and Climate Plans and EU 2030 Governance</p> |



Source: Authors' own depiction.

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[https://www.diw.de/documents/publikationen/73/diw\\_01.c.813281.de/dwr-21-10-1.pdf](https://www.diw.de/documents/publikationen/73/diw_01.c.813281.de/dwr-21-10-1.pdf)

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<https://climatestrategies.org/projects/european-climate-friendly-materials-platform/>