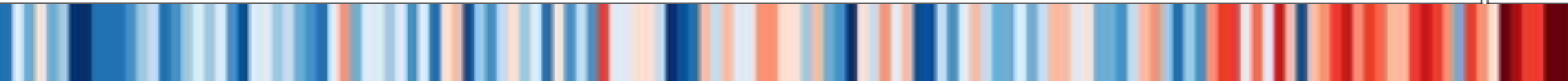
A warm welcome to you!



Annual average temperatures Germany 1881-2019, DWD (https://showyourstripes.info/)

Online seminar:

EU-Consultation Energy Taxation Directive & Border Adjustment
From exception to polluter-pays

Jörg Lange, Carbon Tax Association (CO2 Abgabe e.V.)

Programme

- Carbon Tax Association: Who we are and what we do
- (Short) history: carbon price & energy taxes and starting position
- Controllable emissions according to the territorial and consumption concept
- EU-Consultation Energy Taxation Directive (until 14.10.2020)
- EU consultation on border adjustment (until 28.10.2020)
- Discussion
- If time is left: going through the questionnaires?

But first, please participate in our online seminar evaluation:

https://www.survio.com/survey/d/D7I1T5G9G3O2B3R1O

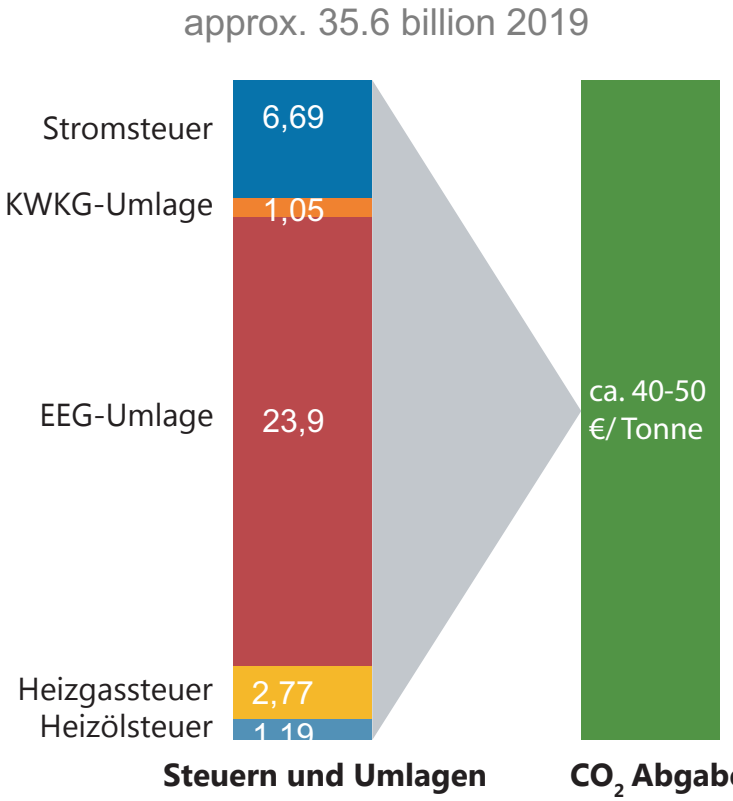
Carbon Tax Association: Who we are and what we do

Our core interests:

- uniform carbon prices on all fossil fuels without exceptions,
- to reduce the climate-damaging false incentives of the previous price components in energy costs and
- To realign energy prices to the polluter-pays principle, open to new technologies, socially acceptable and unbureaucratic in order to protect the climate.

carbon minimum prices on all fossil energy sources

without exceptions in the context of a tax and apportionment reform!



Energiebedingte Steuereinnahmen		
	2018	2019
	Mrd.	Mrd.
Energiesteuer Heizöl	1,0	1,2
Energiesteuer Heizgas	3,1	2,8
Stromsteuer	6,9	6,7
EEG-Umlage (Differenzkosten)	23,8	23,9
KWK-G-Umlage	1,2	1,1
Zwischensumme	**36,0**	**35,6**
auf Sonstiges (Benzin, Diesel etc.)	36,7	36,8
Kraftfahrzeugsteuer	9,4	9,1
Luftverkehrssteuer	1,2	1,2
Zwischensumme	**47,3**	**47,0**
Gesamtsumme	**83,2**	**82,6**

https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Steuern/Steuerschaetzungen_und_Steuereinnahmen/1-kassenmaessige-steuereinnahmen-nach-steuerarten-und-gebietskoerperschaften.html

(Short) History: Carbon Price & Energy Tax

- The concept of the Pigou tax was formulated as early as 1920 in the economic context by Arthur Cecil Pigou. The carbon tax is one form of it.
- In the mid-1970s, **William D. Nordhaus** (born in 1941) argued with cost-benefit analyses to stop man-made climate change by pricing it in and was awarded the Nobel Prize for Economics in 2018 for his work on internalizing the "social carbon costs" (carbon price).
  1992: The 'DICE' Model: Background and Structure of a Dynamic Integrated Climate-Economy Model of the Economics of Global Warming (https://ideas.repec.org/p/cwl/cwldpp/1009.html)
- 1991 Draft of a European combined energy and carbon tax, initially in 1993: 3 USD per barrel, increase 1 USD per barrel per year: (https://ec.europa.eu/commission/presscorner/detail/de/P_91_67)
- 1994 Recommendation on the Europe-wide energy Carbon Tax Final Report of the "Enquete Commission "Protection of the Earth's Atmosphere"
  (https://dip21.bundestag.de/dip21/btd/12/086/1208600.pdf), p. 488 ff.
- In 2005 the EU introduces the European Emissions Trading Scheme (EU-ETS).
  (https://de.wikipedia.org/wiki/EU-Emissionshandel#Hintergrund_und_Entstehungsgeschichte)

→ **carbon price is certainly not a new topic, if the EU had decided at that time on the increase of 1 USD per barrel of oil per year, we would be at about 100 € per ton of CO_2 today.**

Integrate Externalities into the “True" Costs

= in the sense of the costs of damage to the environment, which arise during production or consumption but are not incurred by the polluter

Power

- Fossils Fuels (climate crisis)
- Eternal burdens Mining
- Air Pollution

Industry

- Fossil fuels (climate crisis)
- Processes
- Raw materials/resources
- Pollution Toxicity Raw material extraction
- Social costs
- extinction of species

Building

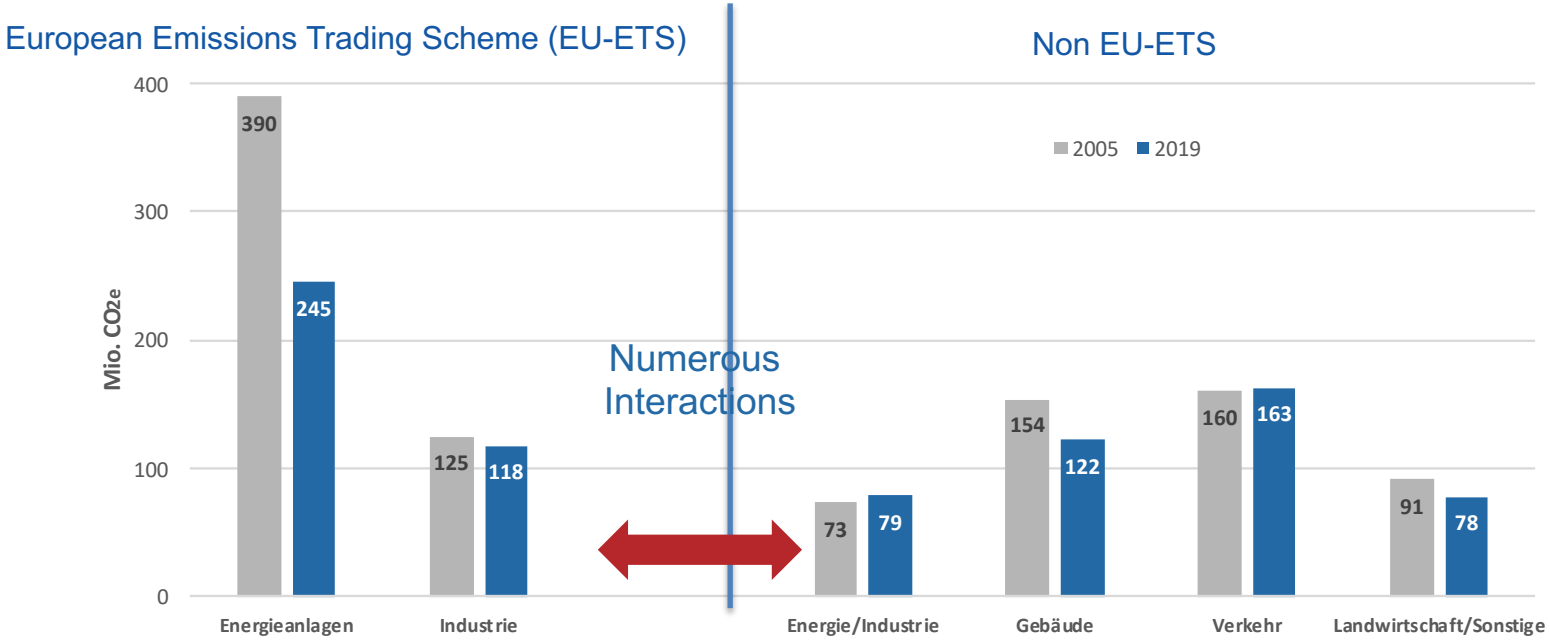
- Fossils Fuels (climate crisis)
- Insulation/ building materials (gray energy)
- Competition for land

Traffic

- Fossil fuels (climate change)
- Pollution
- Air Pollution
- Accidents/health
- traffic jams
- extinction of species
- Competition for land

- **a carbon price does by far not address all externalities**
- **In transport, infrastructure costs are not shown**
- **Different levels of CO2 avoidance costs**

Territorial Emission Savings in Germany 2005-2019, (since the introduction of European Emission Trading Scheme (ETS))



→ Reduction of greenhouse gases from industry in the EU ETS remains far behind the reductions in energy installations

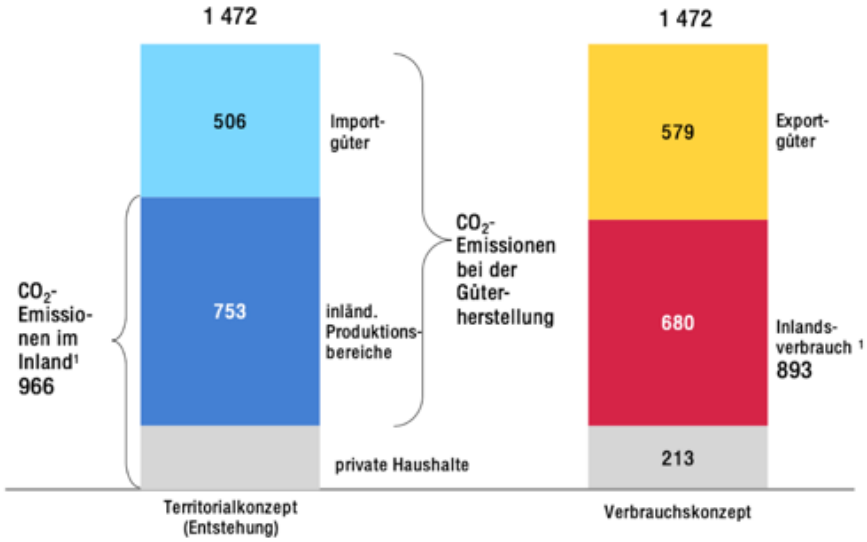
Basic Considerations

Total emissions that can be influenced ?

Total emissions that can be influenced increased from 2010 to 2015 (+ approx. 92 million tons)

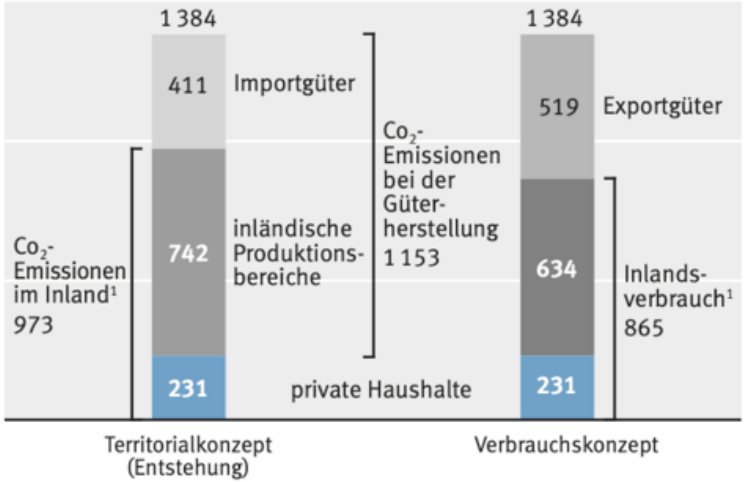
the influence of households is decreasing...

Abb 2 **Direkte und indirekte CO_2-Emissionen in Deutschland 2015**
Mill. Tonnen



(destatis 2019)

Schaubild 1 **Direkte und indirekte Co_2-Emissionen in Deutschland 2010**
Mill. Tonnen

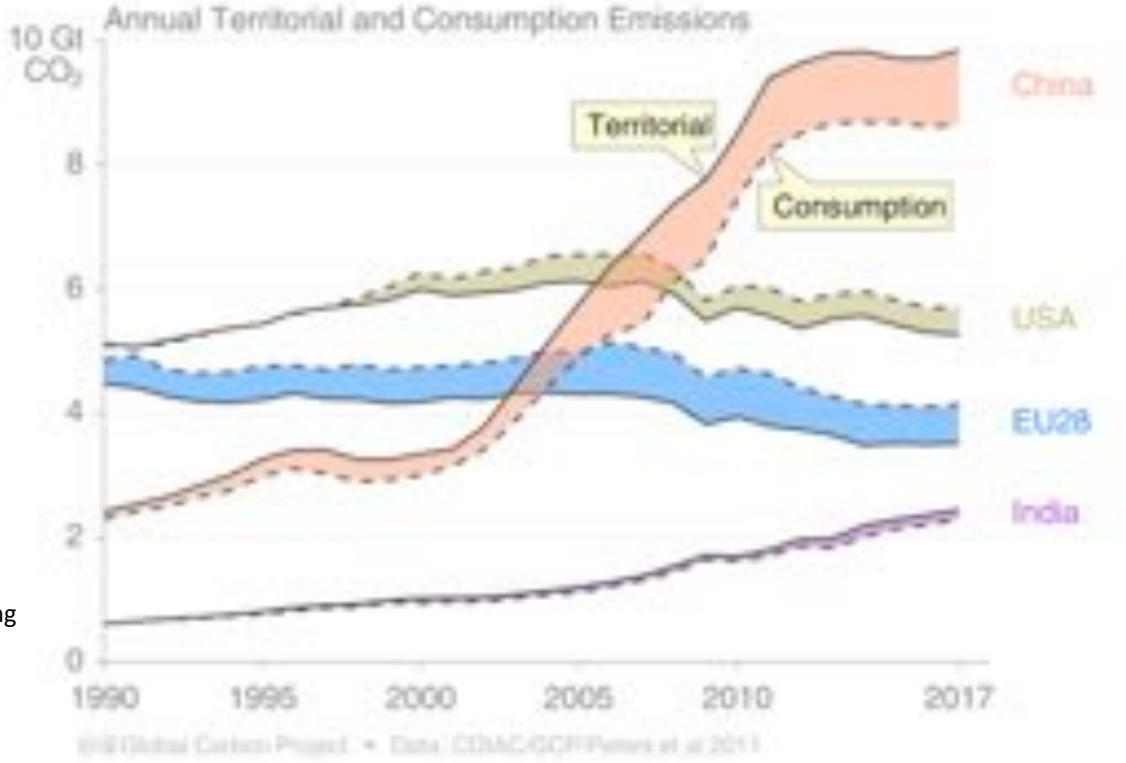


1 In Abgrenzung der Volkswirtschaftlichen Gesamtrechnungen, einschließlich Emissionen aus Biomasse

(destatis 2014)

Consumption-based Emissions ($_{CO2e\ footprint}$) Taking into Account Different Emission Intensities

The EU28 is the largest net importer of greenhouse gases via products, with around 700 million tonnes.



Consumption-based emissions are calculated by adjusting the standard production-based emissions to account for international trade
Source:
Peters et al 2011; Friedlingstein et al 2019; Global Carbon Project 2019

EU Consultation on the Energy Taxation Directive

What could be the core of the issue?

1. Alternative to carbon pricing via expansion of the European emissions trading system or additional emissions trading for buildings & transport?
2. Alignment of different government-induced price components?
3. Taxation by energy content and/or greenhouse gas emissions?
4. Income...?

EU Consultation on the Energy Taxation Directive

Our goals/evaluation criteria

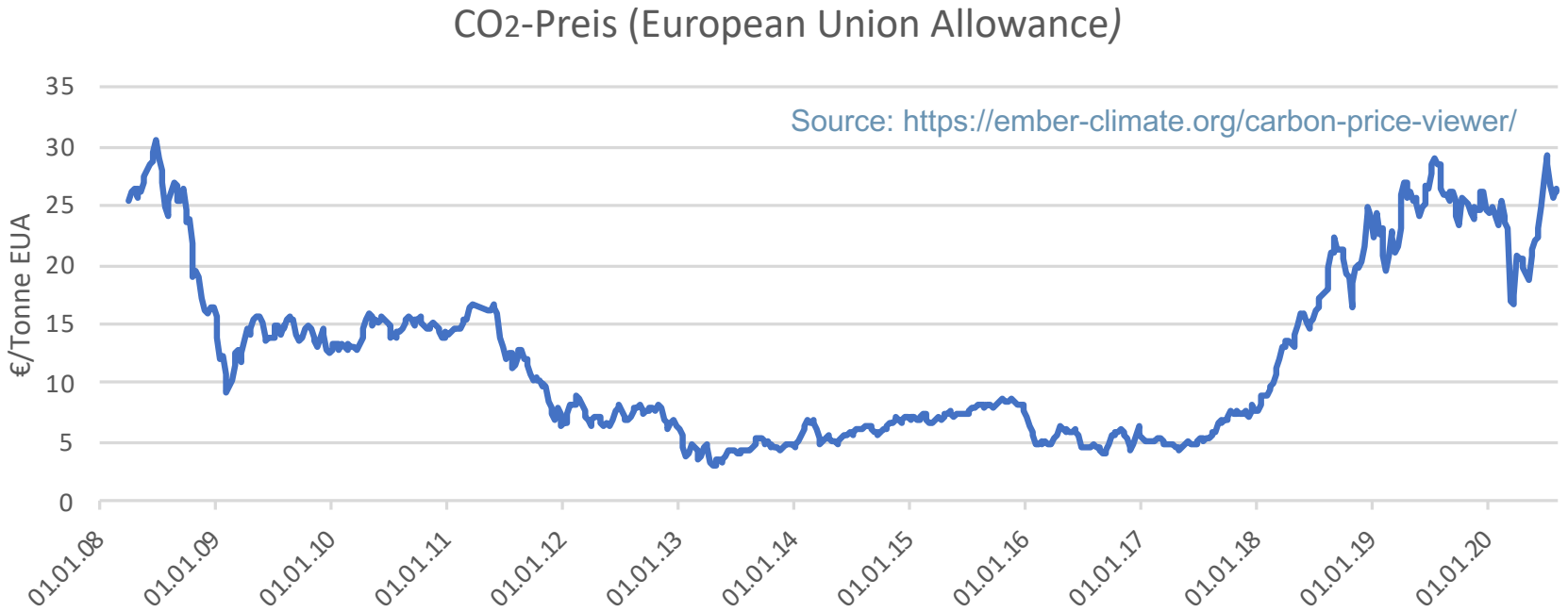
- No exception for anyone
- Carbon leakage protection through border adjustment & targeted measures such as Carbon Contract for Difference
- Solving social hardship cases in a targeted manner with socio-political measures

Link to the consultation

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12227-Revision-of-the-Energy-Tax-Directive/public-consultation

European emissions trading (EU-ETS)

Development of carbon price (2008-2020)



EU-ETS carbon prices very low for a long time

Carbon leakage risk through EU-ETS for industry just as long low (ebenso lang niedrig)

Carbon Border Adjustment

Initial situation

- **Tightening of the EU climate target by 2030** (- 55 to 60% by 2030 instead of 40%)
  70% would be necessary to stay well below 2° according to the budget estimate until 2100.
- Result: **Cap (upper limit for the number of emission certificates) in the European emissions trading system (EU-ETS) is lowered** Increasing reduction factor (previously 2.2% per year),
  carbon prices in the EU ETS are rising or surpluses of certificates are being quickly reduced.
- **Previous measures** (free allocation, electricity price compensation, etc.) **to protect against carbon leakage** (migration and emissions to non-European countries) are **no longer sufficient**
- **Border adjustment is necessary** to avoid distortion of competition.
- **A mechanism for border adjustment is in principle compatible with GATT (WTO) or European law if it is motivated and justified by environmental or climate policy.**
  Border adjustment on imports must not be higher than the taxation of domestic goods.

Protection Against Carbon Leakage - CO_2 Limit Compensation

What applies to all variants of border adjustment?

1. A change from a purely territorial and production-based emissions assessment and, if necessary, recording to an assessment that also makes non-European or consumption-based emissions (emissions footprint) the basis for pricing or border adjustment.
2. The CO_2 content or greenhouse gas potential of affected goods and services must be recorded in more or less detail (and a decision must be made on the extent to which inputs are included).
3. Idea and theoretical mode of operation of the different variants are not far apart -> what matters most is a practicable implementation with possibly higher costs
4. How do you deal with the different emissions from power generation (indirect emissions)?

Carbon Border Adjustment

Possible objectives of a border adjustment mechanism

- Protection against carbon leakage
- Enable higher carbon price level in the EU-ETS
- Climate Neutral Production of the Industry
- Incentive instrument for fewer end products with energy-intensive raw materials
- Financial instrument: EU budget
- Financial Instrument: nationally
- Earmarking financing instrument e.g. for Carbon Contract for Difference (CCFD)
- Payment into climate fund for climate protection measures (e.g. industry) outside EU
- Mapping of greenhouse gases and corresponding costs through the supply chain to the final product (polluter-pays principle)

Protection Against Carbon Leakage Today a Major Reason for Bureaucracy

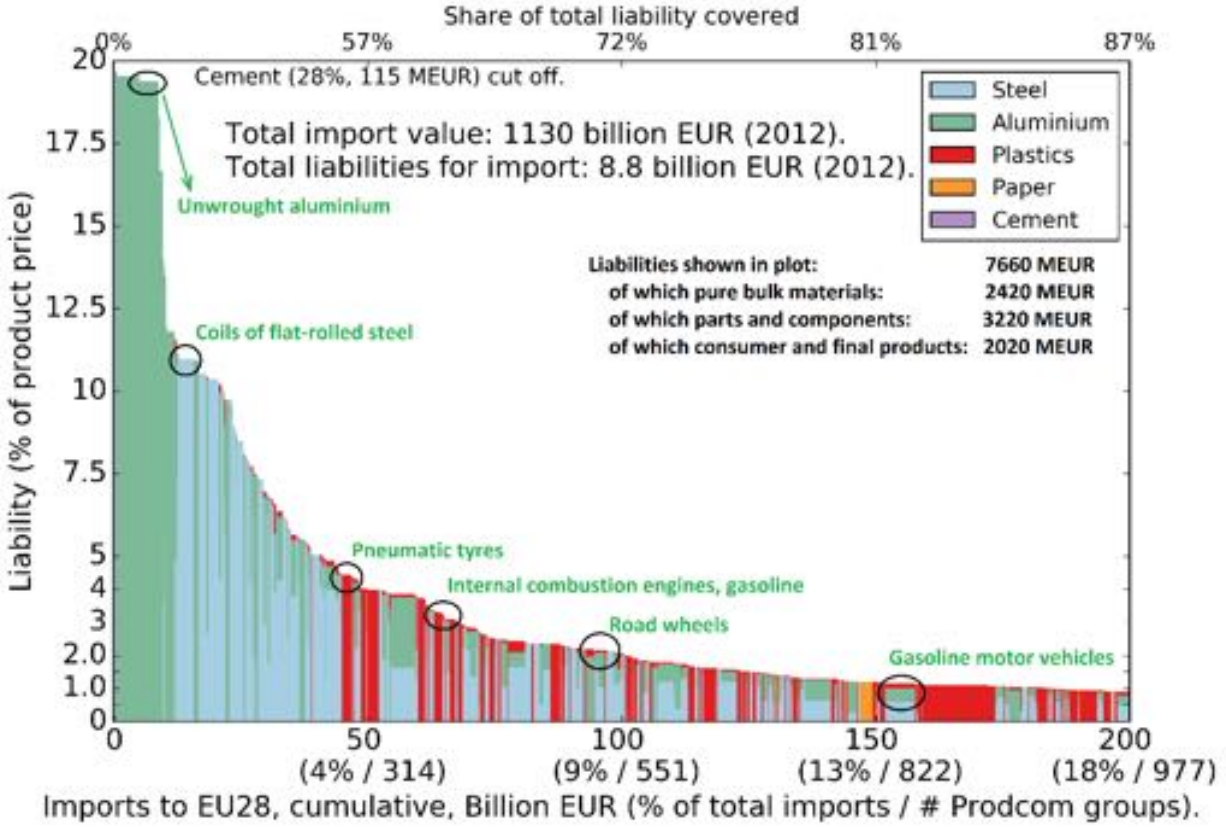
1. Proportional free allocation of emission rights in the EU ETS
2. National electricity price compensation for higher electricity prices due to emissions trading
3. **National reduced rates of energy taxes and levies as a result of the energy transition (EEG levy, BesAR, electricity and energy taxes).**

Protection/risk of carbon leakage

Exceptions
(BesAR, energy taxes etc.)

Bureaucracy
Customs office, reporting requirements etc.

Which product groups would be affected by an introduction?

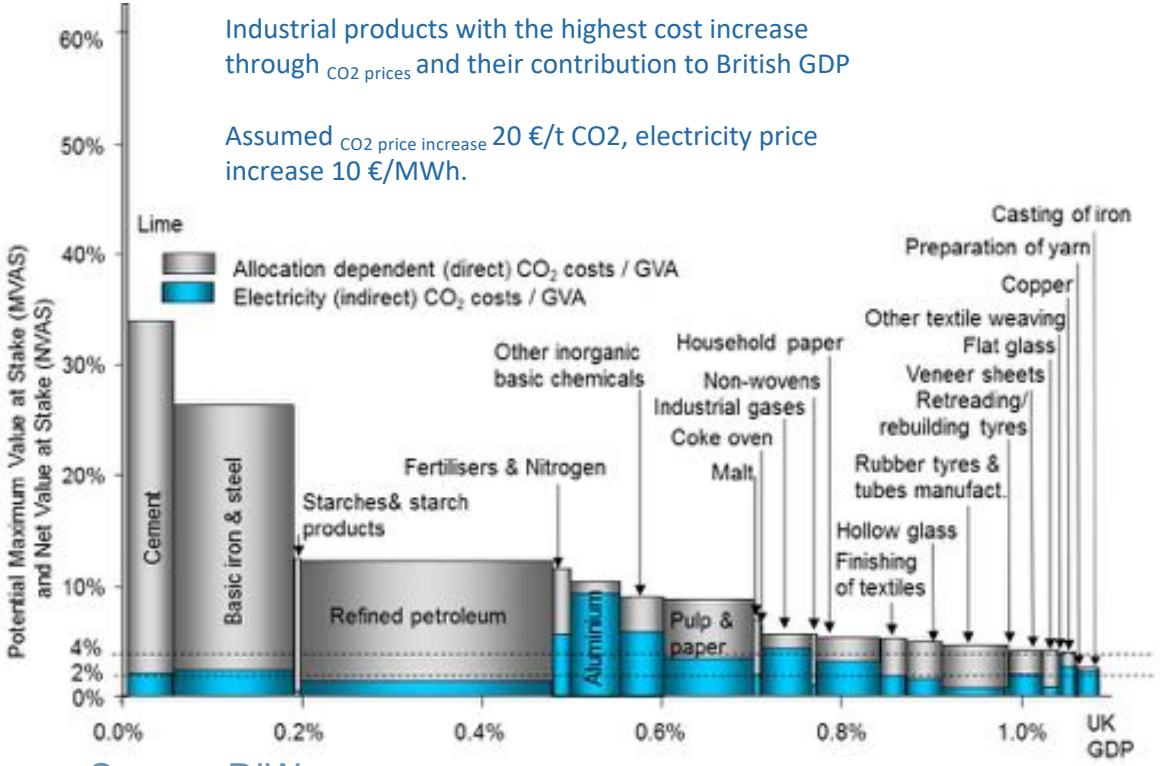


Source
Pauliuk, S., K. Neuhoff, A. Owen and R. Wood (2016). Quantifying Impacts of Consumption Based Charge for Carbon Intensive Materials on Products. DIW Discussion Paper 1570.

Should only particular CO_{2e}-intensive goods be be included or all?

Industrial products with the highest cost increase through $_{CO2\ prices}$ and their contribution to British GDP

Assumed $_{CO2\ price\ increase}$ 20 €/t CO2, electricity price increase 10 €/MWh.



Source: DIW

➡ Can/should one include via threshold values or define via products (industries)?

Protection against carbon leakage - CO_{2e} Limit Compensation

Fundamentally different design variants

1. **Obligation to purchase EU-ETS certificates on imports**:
   Companies that import greenhouse gas-intensive raw materials to Germany must buy EU-ETS certificates.
2. **Carbon Border Tax compensation**:
   Tax in the amount of e.g. the EU ETS certificate price for energy-intensive raw materials when crossing the border according to the principle of VAT equalization.
3. **End product levy (consumption levy or climate levy similar to DIW proposal):**
   Tax on end products (such as cars) with a high share of emission-intensive raw materials in combination with the free allocation of EU-ETS allowances (for greenhouse gas emissions exceeding product benchmarks)

Basic variants for a limit compensation using the example of steel/car
At what point is money taken?

	Product	EU	Border	Non EU
	Additional costs product	Additional costs for one tonne of steel at 25€/CO2e		Additional costs for one tonne of steel at 25€/CO2e
	Today: incl. free allocation and current price compensation approx.	+ 4 €		0 €
1	EU-ETS certificates on imports without free allocation and current price compensation	Steel + 48 €		Steel + 48 €
2	Limit tax compensation (Carbon Border Tax)		- 48 € / + 48 €	
3	Final product delivery (consumer tax/ climate levy)	600 kg steel per car + 29 €		

Beispiel PKW		
Stahl proPKW	600	kg
Benchmark	1,9	t CO2e/1000 kg Stahl
CO2e pro Auto	1,14	Tonnn CO2e
CO2-Preis	25	€/Tonne CO2e
Aufschlag	**29**	**€**

Basic variants for a border adjustment
Income level and use of income?

		Net Revenue with the states/EU	Use of income
	Today: minus free allocation and current price compensation approx.	low	➢ Measures of the National Climate Protection Fund
1	EU-ETS certificates on imports without free allocation and current price compensation	higher	➢ Budget EU ? ➢ National budgets ? ➢ Financing Carbon Contract for Difference (CCFD) ? ➢ Climate fund for measures outside the EU ?
2	Limit tax compensation (Carbon Border Tax)	low	
3	Final product delivery (consumer tax/ Climate Change Levy DIW)	higher	➢ Budget EU ? ➢ National budgets ? ➢ Financing Carbon Contract for Difference (CCFD) ? ➢ Climate fund for measures outside EU ?

Carbon Border Adjustment

Fundamental risks

- Risk of "reshuffling": trading partners export "green" to the EU, but continue to produce "brown" for other markets (applies above all to emissions from electricity generation, keyword "green electricity procurement")
- Risk of retaliation despite best possible design with regard to WTO conformity
  -> high diplomatic effort. Trade conflicts/dispute cases; the greater the price difference between the carbon costs existing abroad and the carbon price applied to imports in the EU, the higher the risk.

Importers of raw materials into the EU should be given the opportunity to prove lower CO2e product contents than the reference values (benchmarks, averages) and thus reduce their assessment basis for the border adjustment price they pay. Regional procurement of green electricity must be guaranteed.

Carbon Limit Compensation

Enable unbureaucratic and easy access

- It is already possible today to determine the greenhouse gas emissions of the primary energy sources used in basic products by making general assumptions about the average CO_{2e} intensity of basic products (ISO 14067, British PAS 2050 and the GHG Protocol).
- The verification of greenhouse gases through all production steps as well as the transport of many intermediate and end products (life cycle assessment) for products that exceed a threshold value of greenhouse gas intensity is a meaningful development in the medium to long term.
- This requires the development of a standardized and largely automated detection mechanism for greenhouse gases in intermediate and end products.

→ **The medium- to long-term goal must be to make the "true" carbon prices of products recognizable to the user in the simplest possible way.**

EU consultation on carbon border adjustment

Four suggestions are available

1. Tax (duty) on imports at the EU border on products with the risk of carbon leakage (EU consultation 6.1)
2. Extension of the EU Emissions Trading Scheme (EU ETS) to imports of emission-intensive basic materials (EU consultation 6.2).
3. Mandatory certificate pool for imports outside the EU ETS, which is strongly oriented towards the carbon price of the EU ETS (EU consultation 6.3).
4. Carbon tax (e.g. excise tax or some kind of VAT) on products that are subject to the risk of carbon leakage, regardless of their origin (EU consultation 6.4).

Link to the consultation

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism/public-consultation

Carbon Border Adjustment

Possible accompanying instruments

- Carbon Contract for Difference (CCFD)
- Electricity price compensation / capped industrial electricity prices
- Free allocation / Dynamic free allocation (DIW)
- Carbon minimum prices / price stability reserve

Carbon limit compensation

Additional module "Carbon Contract for Difference"(CCFD).

- The national state concludes a contract with an industrial company in which the state pays subsidies as long as the price of greenhouse gases is too low to be able to invest in new climate-neutral production facilities. If the price eventually rises, the company pays back. In this way, the climate-neutral conversion of the raw materials industry can begin immediately.

Example: Green hydrogen from electrolysis (chemistry)

Avoidance costs minus saved operating costs 170 € per ton of CO_{2e}	-	EU ETS Prize 50 € per ton of CO_{2e}	=	Differential costs 120 € per ton of CO_{2e}

Without CCFDs, leapfrogging investments in climate-neutral production facilities are not expected in many greenhouse gas-intensive sectors

Further information on contracts for differences
https://www.diw.de/de/diw_01.c.670596.de/differenzvertraege_contracts_for_difference.html

Carbon Limit Compensation

Summary and conclusions

- As long as there are no uniform carbon prices worldwide, a mechanism for border adjustment is necessary for reasons of competition and protection against carbon leakage.
- The current carbon leakage measures in the EU ETS (free allocation and electricity price compensation) are not sufficient to achieve a reduction of greenhouse gas emissions by 55 to 60 % by 2030 with an appropriate cap in the EU ETS.
- A functioning border adjustment is a necessary component to enable significantly higher prices for greenhouse gases without carbon leakage in industry.
- Border adjustment is not yet a sufficient instrument to enable industry to invest in climate-neutral production processes at high carbon avoidance costs. This requires additional building blocks and a long-term strategy for the further development of the EU ETS, such as the Carbon Contract for Difference (CCFD), a price stability reserve.

Carbon Limit Compensation

Summary and conclusions

- Compensation for electricity prices or a cap on industrial electricity prices is not a solution that is fair to the polluter. The costs of increasingly renewable and flexible power generation as well as electricity transport costs must also be reflected in the product costs. This requires a mechanism that enables industry to price the true cost of green electricity into products. Price signals must reach the user of a product in order to be able to make a different product decision if necessary (example: wood instead of steel as a building material).
- Free allocation and electricity price compensation are thus a phase-out model for carbon leakage in the medium to long term.

Carbon Limit Compensation

Summary and conclusions

- All mechanisms currently under discussion for border adjustment via a tax at the border, via the obligation to purchase certificates on imports of basic materials or a levy on products can, depending on their design, be designed in principle to be compatible with world trade and European law. To this end, imported products must not be treated worse than similar domestic goods. Above all, this means that the border adjustment on imports must not be higher than the taxation of domestic goods.
- In the medium to long term, the aim is to develop a largely automated verification mechanism for greenhouse gases through all production steps and the transport of many intermediate and end products (life cycle assessment), which can then be used as a basis for the pricing of border adjustment.

Carbon Border Adjustment

Summary and conclusions

- Carbon minimum prices or price stability reserves increase planning security for the industry and facilitate the determination of specific border adjustment prices, if necessary.
- Corresponding offers to developing and newly industrializing countries are necessary (investment aid, possibly temporary exceptions) in order to bring production up to the necessary climate and social standards.
- Revenue use/investments for climate-neutral production processes outside the EU increase the acceptance of border adjustment mechanisms outside the EU.
- Taxes within the framework of the EU energy tax reform, which then also apply to imports, are unproblematic in terms of WTO law and are a permanent source of income, as long as they are also measured by energy content.

→ Carbon prices and border adjustment will disappear in the long term if they are successful.

Summary and Conclusions

Energy Taxation Directive & carbon border adjustment

- The reform of the Energy Taxation Directive enables the alignment of state-induced price components in energy taxes and levies and their uniform alignment with greenhouse gas emissions/climate damage costs in the EU.
- Border equalization allows for an industrial policy without exceptions and avoids the risk of carbon leakage and reduces bureaucracy.
- Entry into border adjustment via flat-rate assumptions on the average CO_{2e} intensity of basic products is already possible today.
- Desirable in the medium to long term: balancing greenhouse gas emissions throughout the entire supply and value chain.
  The effort to make the greenhouse gas emissions visible in the end product and the costs is an added value for climate protection, in contrast to the previous bureaucracy of exceptions and reimbursements.
- In the end, we all should only be able to buy products that, in total, comply with the Paris Agreement.

Thanks for Your Attention

If I have aroused your interest, please support us by becoming a member of co2abgabe.de/member/

e-mail: Joerg.Lange@co2abgabe.de Phone +49 (0)761-45893277