A design of the carbon border adjustment mechanism for an inclusive transition to climate neutrality

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The European Green Deal requires an effective Carbon Border Adjustment Mechanism (CBAM) for an inclusive transition to climate neutrality in the basic materials sectors. Otherwise:

- Controversy about the free allowance allocation will persist together with debates on carbon leakage risks, creating uncertainty and delaying low-carbon industrial investments.
- The CO_2 price signal of the EU ETS will be largely muted for investments in a transition to climate neutral production and use of materials due to the international tradability of materials.
- Member States would need to fund the transition to climate neutrality from their national resources, which will likely lead to further fragmentation of industrial potential in the EU.

A CBAM design based on established, uncontroversial and WTO compatible excise adjustments mechanisms, can support an inclusive industrial transition to climate neutrality for all industrial regions. This requires three elements.[1]

1. **The climate contribution ensures effective carbon price incentives along the value chain**. Producers of basic materials are liable for the climate contribution per weight of the material. The level of the liability for a material like steel is set by a benchmark for carbon intensity of material production multiplied with the EU ETS carbon price from the allowance auctions in the preceding year.[2] The established border adjustment mechanisms for excises apply: The liability is not due, if materials or products containing the materials are exported. Importers incur a liability for imported materials or materials as part of products with significant shares of carbon intensive materials.

   The climate contribution ensures that carbon costs are reflected in material prices as these are currently largely muted due to international tradability of materials. This creates carbon price incentives for efficient material use and choice as well as recycling. By ensuring that material prices reflect carbon costs, the climate contribution also creates the required revenue stream to fund carbon contracts for difference at a sufficient scale to support the transition to climate neutrality in all European industrial regions.

2. **The EU ETS with free allowance allocation incentivises carbon efficiency of conventional material production. It also ensures the integrity of emission cap** as installations can only emit if they obtain allowances. The resulting market price incentivises carbon efficiency of emitters and, through climate contribution, of material users.

   To avoid double charging through EU ETS and climate contribution, free allocation of EU ETS emission allowances is granted for each tonne of material production with conventional production processes. It is provided at a benchmark rate directly linked to the weight of materials produced to avoid risks of windfall profits while ensuring material producers retain full incentives to improve carbon efficiency. To avoid the risk that firms limit their efforts to shift to clean production processes, free allowance allocation would be conditional on the pursuit of transition plans in which basic material producers outline how they intend to shift their production to climate neutrality.[3]

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[1] For key publications on elements and their interaction see: https://climatestrategies.org/projects/european-climate-friendly-materials-platform.
[2] Brzeziński and Śniegocki, Climate Contribution and its role in European industrial decarbonisation, Climate Strategies Report (2020).
[3] UK government, i.e., signs Climate Change Agreements with firms which include reduction targets, UK CCA Evaluation of 20 year experience.

3. **Carbon contracts for difference (CCfDs) introduce incentives for clean material production and recycling.** Currently carbon costs are only very partially reflected in material prices, and hence climate neutral production processes cannot financially benefit from the carbon savings they offer. Hence many Member States and the European Commission envisage to learn from the success of CCfDs for renewable investment and offer CCfDs to support investments in clean production and innovative recycling processes.

   CCfDs pay for the carbon savings of new production processes and new recycling processes compatible with the transition to climate neutrality.[4] The reference price for CCfDs would be set through a competitive discovery process (in mid-term through auctions) at the level of their incremental costs relative to conventional process. This ensures payments to clean production processes are limited to incremental costs of clean processes and thus avoid WTO concerns.

   CCfDs thus create markets for climate neutral material production until international cooperative approaches ensure carbon costs are reflected in the price of traded basic materials or conventional material production and use is banned.[5] The payments under the CCfDs will then be reduced automatically by the level of carbon costs reflected in basic material prices.

No element can function on its own. For example, an EU ETS with free allowance allocation alone fails to incentivise investments in material efficiency and recycling and to create resources at European scale to support an inclusive transition to climate neutrality for all industrial regions. A climate contribution on its own does not create incentives for improved carbon efficiency or climate neutrality. Next to these instruments, public investments in infrastructure, meaningful engagement and information processes and instruments, and green procurement are needed.[6]

Together these elements re-establish the integrity of the EU ETS carbon pricing mechanism. The market equilibrium between EU ETS emission cap and emissions from EU ETS installations determine the carbon price. If the EU ETS price changes, it not only affects incentives for conventional material production but also for material efficiency, substitution and recycling. Thus, all mitigation opportunities benefit from carbon pricing incentives while carbon leakage risks are avoided. The combination of elements:

- avoids disputes on level of free allowance allocation to balance incentives and carbon leakage concern.[7]
- limits complexity and administrative efforts for public and private actors.[8]
- can be implemented as part of the EU Environmental Regulation.[9]
- avoids international trade conflicts and associated uncertainties.[10]
- offers a foundation for the further development of international cooperation on climate policy.

The mandate of the EU commission to propose a CBAM in combination with the ambition of the EU Green Deal to support an inclusive transition to climate neutrality offers a unique window of opportunity to implement the reform. This reform will allow industry to realise projects and for existing EU instruments like the EU Innovation Fund, NextGenerationEU, Just Transition Mechanism and Horizon Europe to catalyse these investments across the EU. To contribute to global investments towards climate neutrality, Europe needs to make the right policy choice.

[4] Richstein e.a. (2021) Carbon Contracts for Difference, Climate Strategies Report.
[5] Gerres e.a. (2021) A legal and administrative assessment of product carbon requirements, RECIEL
[6] Chiappinelli e.a. (2021) A green COVID-19 recovery of the EU basic materials sector: ...potentials, barriers and policy solutions, Climate Policy
[7] Stede e.a. (2021) Carbon Pricing of Basic Materials: Incentives and Risks for the Value Chain and Consumers DIW Discussion paper.
[8] Haussner (2021) IoC in Emission Trading, Economic and Legal considerations, Edward Elgar Publishing.
[9] Ismer and Haussner (2016) IoC into the EU ETS: The Legal Basis under European Union Law, RECIEL
[10] Ismer e.a. (2021) Climate neutral production, free allocation .., and the WTO: How to secure compatibility with the ASCM, DIW Discussion Paper.