CRA Insights:
Energy

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The EU carbon border adjustment
Our initial views

Policymakers have sought to internalise the effect of global emissions from carbon dioxide into economic decision-making by trying to establish a price for carbon. In an ideal world, there would be a globally harmonised price of carbon. However, no global scheme exists and, in many countries, there is no "price of carbon." Where carbon pricing schemes exist, there can be differences in regulation and application. In some regions which do apply carbon pricing, there is a risk that carbon-intensive industries, which are significantly exposed to international trade, can be disadvantaged relative to foreign competitors not subject to carbon pricing. Whilst emissions within the pricing scheme area are reduced, they are effectively leaked to other countries with less stringent regulation.

Various mechanisms to control such carbon leakage have been considered. The European Union (EU), for example, allocates free emission allowances to industries at high risk of carbon leakage. The EU is now considering imposing border adjustments (sometimes called border tax adjustments or border carbon adjustments).

On 4 March 2020, the European Commission (the Commission) launched a consultation for a carbon border adjustment mechanism (CBAM) with the publication of an inception impact assessment (IIA).[1] The CBAM is part of a proposed suite of tools to support the long-term objectives of the European Green Deal. The CBAM could take various forms but would largely amount to an effective tax on carbon emissions associated with imported goods. When implemented, it could potentially change the pattern of trade flows as well as the geography and type of energy demanded across the world, creating risks for stranded assets but also new opportunities to deploy capital.

In this edition of *CRA Insights: Energy*, our London colleagues discuss their initial views on the potential impact of the CBAM. We first summarise the key points from the IIA. We then outline some potential design features and discuss their implications. We then discuss key questions for energy and manufacturing firms.

[1] See European Commission, Proposal for a directive, EU Green Deal (carbon border adjustment mechanism), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism.

The Commission's initial impact assessment

The IIA sets out the Commission's high-level objectives and initial views on the CBAM. It is a prelude to the public consultation currently scheduled for the third quarter of 2020.

The IIA confirms that the Commission intends to use a CBAM to tackle carbon leakage by ensuring that "the price of imports reflect more accurately their carbon content."[2] The scope of the CBAM, at least in its initial stage, appears to be limited to sectors with the highest risk of carbon leakage. Those sectors have been determined three times historically. First for the years 2013–2014, subsequently for the period 2015–2020 (originally to 2019), and finally for the period 2021–2030. The list is determined in accordance with the legal framework of each EU emissions trading system (ETS) phase, following a quantitative and qualitative assessment of 245 sectors in the manufacturing and mining and quarrying sectors (considering their emission and trade intensity, and further eligibility criteria determined at the subsector level).

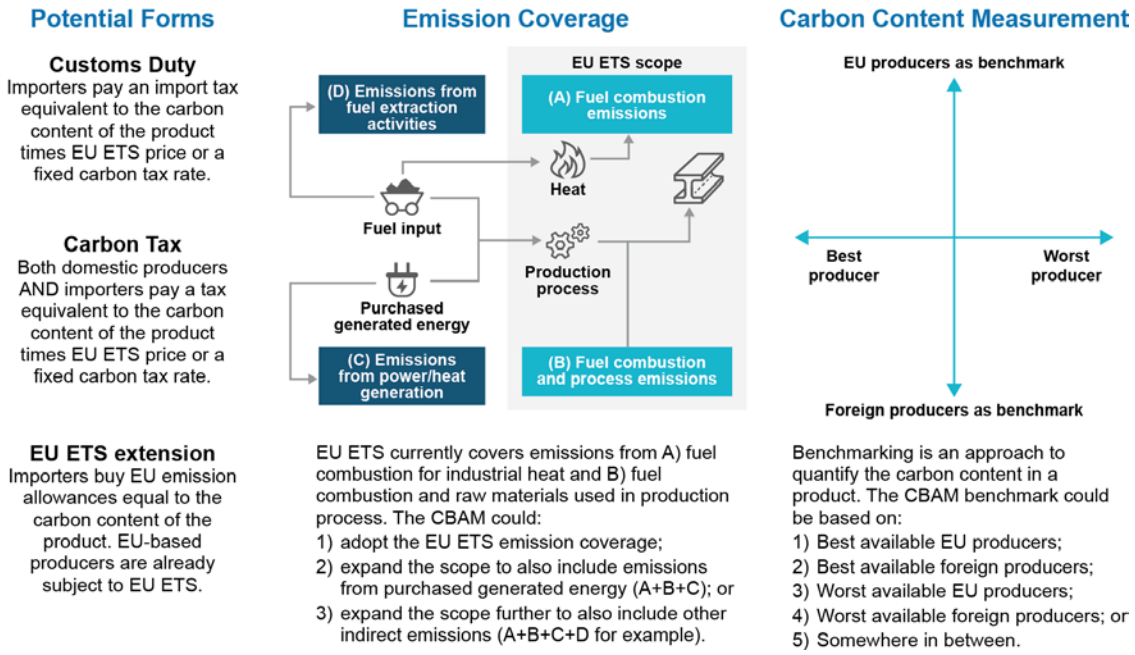
The Commission envisages three potential forms of the CBAM:

- A carbon tax on selected products covering both domestic and imported products;
- A new carbon customs duty or tax on imports; and
- An extension of the EU ETS to imports.

An initial view

Figure 1 shows the three suggested options for CBAM design across three key aspects including the form, the scope of emission coverage and the approach for carbon-content measurement.

Figure 1: Potential design features of the CBAM



Source: CRA research

[2] European Commission (2020), Carbon border adjustment mechanism – inception impact assessment, available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism.

Application

The IIA acknowledges that the final design of the CBAM would have to be compliant with World Trade Organization (WTO) rules. There are different interpretations of what WTO compliance requires in practice. Our survey of the literature on this topic suggests:

- the scheme will need to be focused on industries at high risk of carbon leakage;[3]
- the resulting treatment of imports will be no less favourable than that of domestic producers;[4]
- the scheme will avoid discriminating between different countries of origin;[5]
- the scheme will likely rely on benchmarks (like average performance, best available technology) in assessing how many permits are required or what level of tax is to be borne[6] (although there may be the potential for non-EU producers to demonstrate superior environmental performance based on actual carbon content of their products).

The EU will also need to decide how to distribute the revenues raised. There are many options that could include recycling revenues back into EU industries or supporting developing countries that help with climate policy convergence.

Potential forms

One of the bigger design choices will be the extent to which the EU ETS is the direct mechanism to implement the CBAM. We know that the EU is intending for the CBAM to be "commensurate with the internal EU carbon price."[7] However, will the EU prefer a direct expansion of the EU ETS marketplace (requiring importers to participate in the market) to find a single price level that resolves the carbon leakage problem? Alternatively, could the solution be policy-led with periodic regulatory processes to set a tax or tariff level based indirectly on observed EU ETS prices?

All of these options require some kind of reform to the EU ETS mechanism to create a level playing field between EU and foreign producers. Under the EU ETS, industrial installations deemed to be exposed to a significant risk of carbon leakage have, to date, received special treatment to support their competitiveness. For example, they have received a higher share of free allowances in phase 3 of the EU ETS (2013–2020)[8] compared to the other industrial installations. There have also been national interventions to support industries facing higher wholesale electricity prices as a result of the EU ETS.[9] If a CBAM is introduced, then in some circumstances, it could mean the EU unwinding this support to maintain a level playing field.

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3 See for example Townsend, M. et al., Allen & Overy, "European Commission publishes draft climate law: Europe's "man on the moon" moment?" March 2020, available at https://www.allenovery.com/en-gb/global/news-and-insights/publications/european-commission-publishes-draft-climate-law-europes-man-on-the-moon-moment.

4 See for example Francesco Guarascio and Jonas Ekblom**, "**Explainer: What an EU carbon border tax might look like and who would be hit," *Reuters*, 20 December 2019, available at https://www.reuters.com/article/us-climate-change-eu-carbontax-explainer/explainer-what-an-eu-carbon-border-tax-might-look-like-and-who-would-be-hit-idUSKBN1YE1C4.

5 See for example Mehling, M. et al., "Designing Border Carbon Adjustments for Enhanced Climate Action," *Climate Strategies*, December 2017, available at https://climatestrategies.org/wp-content/uploads/2017/12/CS_report-Dec-2017-4.pdf**.**

6 See for example Mehling, M. et al. "What a European 'carbon border tax' might look like?," Vox CEPR Policy Portal, 10 December 2019, available at https://voxeu.org/article/what-european-carbon-border-tax-might-look.

7 See supra note 2.

8 See EC, EU Emissions Trading System (EU ETS), https://ec.europa.eu/clima/policies/ets_en**.**

9 See for example Department for Business Innovation & Skills (April 2005), Compensation for the EU Indirect Costs of EU Emissions Trading System and the Carbon Price Support Mechanism from 2015.

Emission coverage

Another key aspect of the CBAM is the scope of emission coverage. There are likely to be three incrementally more expansive options for emission scope: direct, direct + indirect, and lifecycle.

Table 1: Emissions coverage options

	Direct	Direct + Indirect	Lifecycle
Scope	Direct emissions from fuel combustion within the plant boundary	Emissions arising from purchased energy such as electricity and heat where they are generated outside the plant boundary	Emissions associated with fuel extraction activities, waste generated in operations (e.g. methane leakage from organic waste) and transportation and distribution activities
Impact	Producers optimise their primary fuel consumption.	Producers optimise the sources of their primary fuel, heat and electricity.	Producers optimise their entire supply chains and operation methods to minimise emissions.

Carbon content measurement

While EU producers are already subject to carbon content reporting, the EU cannot require other trade partners to do so. In the absence of a global standard in carbon emission reporting, a CBAM will require a default carbon content measurement for each product on which the tariff, tax or EU ETS purchase obligation can be applied.

One option would be for measurement to be plant and shipment specific. In practice, the administrative burden could be excessive at least in the initial stages of the CBAM. Therefore, it is possible that a default benchmark would be used at the beginning. The IIA, however, mentions a hybrid possibility for individual importers to certify "a lower carbon content and/or a higher carbon cost at origin."[10] There are two dimensions to consider: the peer group and the level.

Peer group

The EU already has an internal carbon-content benchmark based on EU producers' carbon intensity, used to allocate free emission allowances to industry sectors at risk of carbon leakage. However, adopting the EU-based benchmark for CBAM could lead to more carbon leakage than at present. Under this design, importers would pay the same CBAM adjustment as EU-based benchmark producers even if their product has higher carbon content than the product from EU-based benchmark producers.

Alternatively, the EU could set a separate single CBAM product-specific benchmark for foreign producers by only including foreign producers in the comparator set. If the foreign benchmark is set at a level higher than the typical carbon content of the European product, this would benefit EU producers but could lead to an accusation of discrimination in favour of EU-based producers.

Level

The EU currently uses the best available technology (BAT) benchmark for the allocation of free emission allowances to EU industry sectors at risk of carbon leakage. The current BAT standard is based on the carbon content of the 10% best performing installations. If foreign producers emit more carbon than implied by the BAT standard, then there is a possibility of continued carbon leakage.

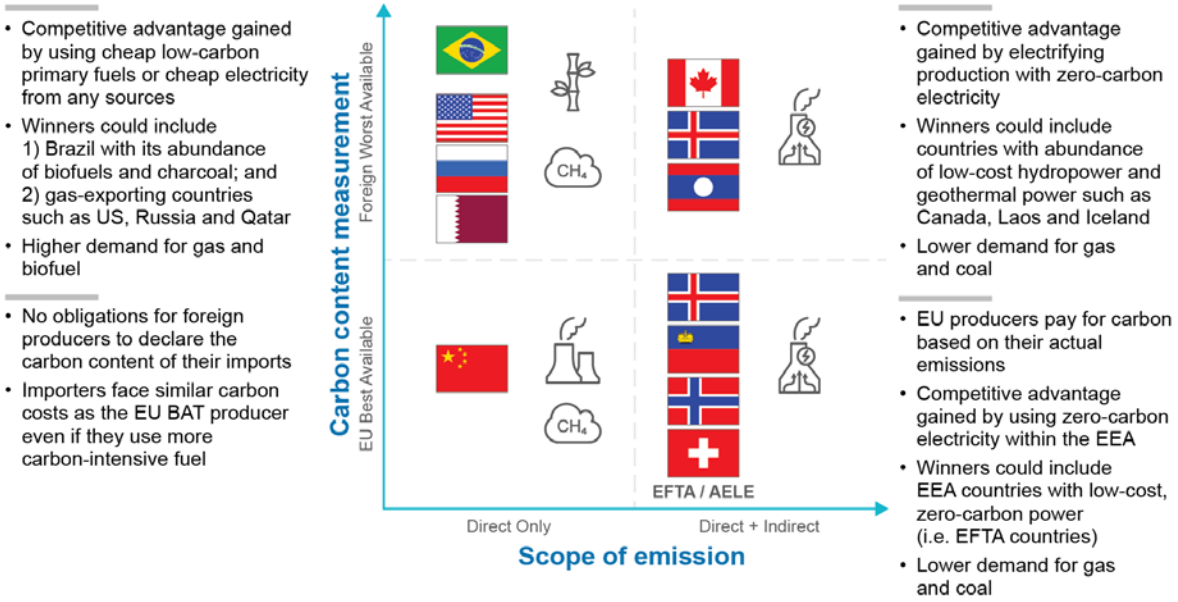
[10] See supra note 2.

Alternatively, the benchmark could be based on the worst available technology (WAT) which would lead to a higher CBAM adjustment (due to higher carbon content assumed). The WAT standard would provide strong incentive for individual importers to seek and certify products with a lower carbon content. However, the standard may be seen as discriminatory if the WAT is substantively different for EU and Non-EU producers.

Potential impacts

When introduced, the CBAM will require detailed analysis to understand the implications for energy companies and manufacturing industries. Figure 2 shows our initial analysis of the potential winners of CBAM under different carbon content measurement and emission coverage combinations.

Figure 2: Potential winners under different CBAM designs



Source: CRA analysis

Figure 2 shows that in a scenario where CBAM only covers direct emissions, countries with access to cheap primary energy will be the main beneficiaries. Where CBAM's carbon content measurement is based on the foreign worst available technology benchmark, countries with low-carbon primary fuels such as Brazil, US, Russia and Qatar could certify their products to benefit from a lower CBAM adjustment. Alternatively, a CBAM based on EU best available technology benchmark would benefit countries with access to the cheapest primary energy regardless of the carbon content of the fuel.

On the other hand, a CBAM that covers both direct and indirect emissions will provide incentives for manufacturers to electrify their production with low- or zero-carbon electricity especially in countries with abundant low-cost electricity from sources such as hydropower or geothermal.

The eventual impact of CBAM on trade flows and energy demand will depend on its final design. The magnitude and pace of the realisation of the impact will depend on the maturity of less carbon-intensive production technologies as well as the size of the CBAM adjustment as a fraction of production costs.

Industry sectors with diverse commercially available production technologies will feel more impact than those with homogenous production technologies.

An example from the steel industry

The variation in potential impacts of the CBAM can be illustrated by considering the iron and steelmaking sector. Producers in this sector currently employ three production technologies;

1) blast furnace/basic oxygen furnace (BF/BOF) predominantly using coal;
2) direct reduced iron (DRI) predominantly using natural gas; and
3) electric arc furnace (EAF) using electricity.

The associated carbon content (direct emission) varies from two tonnes of CO_2 per tonne of steel using BF/BOF and zero tonnes of CO_2 per tonne of steel using EAF. With a meaningful carbon price, this variation in emission rates could lead to significant production shifts between producers, subject to available capacity and transportation costs.

The higher the CBAM adjustment as a fraction of the product price, the higher the exposure of carbon-intensive steel producers to the CBAM. In the recent past, hot-rolled coil steel was trading in the EU at a product price in the $600/tonne range.[11] For hot-rolled coiled steel produced by BF/BOF, an EU emission allowance price of around $25/tonne[12] would have a CBAM adjustment equivalent of around 8% of the product price. The same product produced using an EAF would not have any CBAM adjustment. Figure 3 demonstrates this effect.

Figure 3: Iron & Steel Case Study

Note: Assuming EU ETS price of 25$/$tCO_2$
Source: CRA analysis

Under the CBAM and all else constant, EAF-based producers would have a cost advantage over BF/BOF and DRI-based producers, resulting in an increase in market share.[13] This would potentially lead to lower demand for metallurgical coal and more demand for gas and electricity which would potentially shut out currently marginal producers.

The extent to which EU-based producers would benefit from CBAM is not clear. EU EAF-based producers would be at a disadvantage if the CBAM covers direct emissions only and the financial compensation for indirect emissions is revoked. Under such a scenario, certain foreign-based EAF producers would have a relative cost advantage over EU-based producers as they would not incur the

11 See MEPS International Ltd, World Steel Prices, https://worldsteelprices.com/european-steel-prices/.

12 See Ember, https://ember-climate.org/carbon-price-viewer/.

13 In practice, the market share of EAF-based producers will be constrained by the availability of metal scraps which are input materials for electric arc furnaces.

carbon price element of wholesale electricity prices like EU producers. As a result, there could be more imports of EAF-based steel into the EU regardless of the carbon intensity of electricity used to produce those imports.

Key questions and next steps

As we have illustrated, the CBAM has the potential to change how trade flows between countries and where and how energy will be demanded. This will affect energy companies as well as manufacturers. For both, key questions in relation to the CBAM include:

- How would the potential change in global trade flows affect the demand for energy/industrial products in the regions in which the company is operating or planning to operate?
- How exposed is the company's asset portfolio/manufacturing capacity to the new geography of energy demand/trade?
- How should the company position its regulatory strategy to align with its financial and environmental objectives?
- What are investment opportunities for the company to deploy capital to take advantage of the new energy/trade landscape?

If you think your firm will be affected by the CBAM, let's discuss how our policy analysis capabilities can help you position your business in the CBAM debate.

To learn more about CRA's Energy Practice, visit **www.crai.com/energy**.

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