Assessing the Implications of Carbon Border Adjustment for APEC

Final Report

August 2023

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ABAC

APEC

Asia-Pacific Economic Cooperation

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EXECUTIVE SUMMARY

Climate change is the existential challenge of our age. The international community has recognised that effectively combatting climate change will require a concerted international effort. Under the Paris Agreement, participating members have reaffirmed the goal of limiting global temperature increase to well below 2 degrees Celcius, while pursuing efforts to limit the increase to 1.5 degrees. In support of this goal, most individual participants have committed to achieving net zero emissions (usually by 2050 or 2060). This will require significantly reduced emissions in key sectors such as electricity generation, transportation, manufacturing, buildings and agriculture.

As governments have sought to lower emissions, they have faced the challenge that sectors that are particularly exposed to trade could be disadvantaged by "carbon leakage". Carbon leakage can occur in a situation in which tighter emissions regulations in one jurisdiction leads to a geographical redistribution of the production of carbon-intensive goods towards other jurisdictions with weaker regulations. Emissions-intensive trade is concentrated in a handful of sectors, including chemicals, metals, and electronics. Obviously emissions-intensive trade-exposed (EITE) domestic industries, when faced by measures to lower emissions, have complained about the prospect of competition against imports not facing equivalent measures. To date, governments have often dealt with these complaints by exempting domestic industries from such measures.

Some governments have been considering developing carbon border adjustment mechanisms (CBAMs) to tackle the problem of carbon leakage. Essentially CBAMs seek to impose a tariff or levy on imports that is the equivalent of the increased costs faced by domestic industry. CBAMs have three main objectives: to level the playing field for domestic industry; to ensure that domestic efforts to lower emissions are not undermined by carbon leakage; and to incentivise policies to lower emissions in other jurisdictions. It is wholly understandable that governments should hold such objectives. The question is whether CBAMs are an effective mechanism to achieve them.

To date, only the European Union has made the decisions to implement a fully developed CBAMs regime. A phase-in period will take place between October 2023 and December 2025 where importers will be obligated to provide limited reporting data to the EU but will be charged no levies. The regime will come into full force from 2026 when levies will be charged on imports in accordance with the assessed carbon leakage that they entail. This report will describe the objectives, product coverage and specific provisions of the EU scheme. It will also outline developments in other jurisdictions – the UK, Canada and the United States – that have or are considering developing their own CBAMs.

The EU CBAM raises some challenging issues in terms of its conformance with WTO rules on national treatment, most-favoured-nation treatment and customs duties ceilings. It is clear that in developing the EU CBAM, the European Commission has thought deeply about these challenges and has sought to resolve them. The EU may also seek cover from the

exceptions under the WTO's general provisions, particularly the exception relating to "the conservation of exhaustible natural resources". Nonetheless the EU CBAM is almost certain to be challenged in the WTO with India already having announced its intention to do so.

This report examines the evidence on the likely impacts of the EU CBAM. The evidence shows that taken as a whole, the EU's strategy should be effective in lowering emissions within the EU itself. But most of this reduction will result from domestic EU industries progressively losing their exemptions under the EU's Emissions Trading Scheme (ETS) rather than the CBAM itself. Meanwhile the CBAM will result in minimal reductions in other jurisdictions. This suggests that the EU's main motive in introducing the CBAM is to persuade domestic industry to participate fully in the EU ETS.

The EU CBAMs will also entail trade, supply chain, investment and innovation costs, including in the Asia-Pacific region. When measured, these costs are likely to be quite modest. But they are the nonetheless meaningful, particularly as businesses in the region will need to bear the costs of seeking to minimise the costs of relevant provisions on their operations. It is worth noting that the most affected economies will come from Africa and Central Europe with higher levels of dependence on relevant export commodities. Some APEC economies will also be affected but to a lesser extent and their firms generally have options on how they can mitigate the impacts of EU CBAM. The real risk of the EU CBAM, therefore, is that larger economies (including from the APEC region) will impose retaliatory measures, the costs of which will outweigh the impact of the EU CBAM itself.

A key drawback of the EU CBAM is that it will impact on other jurisdictions but has been developed without their participation and input. This applies particularly to developing economies which are in some cases the most seriously impacted. Given the importance of international cooperation to combat climate change, it is vital that internationally agreed alternatives to CBAMs be developed to tackle the problem of carbon leakage. These might include:

- Climate clauses in RTAs and FTAs to provide tangible commitments on trade and climate change;
- WTO supervised processes to develop international rules around trade and climate change;
- Climate clubs that recognise equivalence of carbon pricing policies and/or of carbon reduction strategies; and
- Capacity building programmes for developing economies seeking to lower emissions.

APEC has a key role to play in the consideration of CBAMs. It should continue its discussions to monitor the impact of CBAMs on emissions reductions and the costs they imply for trade, investment and supply chain efficiency. In particular, APEC members can seek to support each other in not over-reacting to the EU CBAM by imposing further restrictions on trade and investment. Rather, APEC use its role as an incubator of ideas in seeking to cooperate on alternatives to CBAMs that can lower emissions without imposing costs on trade and investment.

GLOSSARY

ACCTS - Agreement for Climate Change, Trade and Sustainability negotiated between a group of small, trade-dependent participants (Costa Rica, Fiji, Iceland, New Zealand and Norway).

CBAM – Carbon Border Adjustment Mechanism. CBAMs are an emerging set of policy tools that aim to prevent carbon-intensive economic activity from moving out of jurisdictions with relatively stringent climate policies and into those with relatively less stringent policies.

Climate Club – a group of jurisdictions with deemed equivalent policies for the reduction of emissions in specific sectors. Free trade occurs between the club members in these products while non-members would be penalised with uniform tariffs.

EITE industries – "Emissions-intensive trade-exposed" industries. These typical include a handful of sectors such as chemicals, metals and electronics.

ETS – emissions trading scheme. A government mandated scheme which allows the market to discover where emissions can be reduced at the lowest cost across the participating sectors.

GATT – The General Agreement on Tarrifs and Trade was a treaty signed in 1947 designed to reduce barriers to international trade. The GATT was expanded and refined over the years, leading to the creation in 1995 of the World Trade Organisation, which absorbed the organization created to implement GATT.

GHGs – greenhouse gas emissions. Often referred to simply as "emissions".

IMF – International Monetary Fund.

The Paris Agreement - The Paris Agreement is a legally binding international treaty on climate change adopted under the UNFCC in 2015. Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels."

RTAs/FTAs – regional trade agreements/free trade agreements (or bilateral and regional free trade agreements).

TESSD - WTO Trade and Environment Structured Discussions.

UNCTAD – United Nations Conference on Trade and Development

UNFCCC – United Nations Framework Convention on Climate Change

WTO – Wold Trade Organisation

PART 1: CLIMATE LEADERSHIP, PARIS AGREEMENT GOALS AND THE ROLE OF CBAMS

The Threat Posed by Climate Change

Parties to the 2015 Paris Agreement committed in 2015 to combat climate change and to accelerate and intensify the actions needed for a sustainable low carbon future. One such commitment was the reduction of carbon dioxide (CO2) emissions, one of the main greenhouse gases (GHGs) causing global warming. The challenge was not minor. CO2 emissions had persistently followed an upward trend for decades, which was only briefly interrupted in 2020 due to pandemic-related economic shutdowns. Carbon emissions saw another record high in 2021.

UNCTAD points out that CO2 yearly emissions had more than quadrupled since the establishment of General Agreement on Tariffs and Trade (GATT) in 1947. Since the creation of the World Trade Organization in 1995, these emissions had increased by 50 per cent. When the institutions that underpin our multilateral trading system were created, the climate and environmental challenges were not the emergencies they are today.

The international community now recoginises that combatting climate change is the existential challenge of our age. Under the Paris Agreement, participating members have reaffirmed the goal of limiting global temperature increase to well below 2 degrees Celcius, while pursuing efforts to limit the increase to 1.5 degrees. In support of this goal, most individual participants have committed to achieving net zero emissions (usually by 2050 or 2060). As of November 2022, 140 participants, covering 91 percent of global emissions, adopted or were considering net-zero targets.[1]

Climate change is a global problem which, if tackled, will need a concerted international effort. Yet while there is a strong common interest in tackling climate change, there are large incentives for nations to lessen mitigation efforts and free ride on the efforts of others. In addition, organisations such as UNCTAD argue that the efforts required to tackle climate change need to be reconciled with climate fairness, arguing that parties have contributed differently to the accumulation of CO2 emissions and that those parties most likely to be affected by climate change are often those least responsible for it. Free riding and climate fairness are the two main issues behind the difficulties in reaching meaningful international agreements on reducing emissions. [2]

At the same time, the scale of both challenges faced both globally and domestically are coming into sharper focus. Key sectors such as electricity generation, transportation, manufacturing, buildings and agriculture will need to significantly lower their emissions. Because it is unlikely that all these sectors will be able to hit net zero, new methods to remove GHGs from the atmosphere will also have to be deployed.

[1] IMF Blog November 2022
[2] P6 "European Union Carbon Border Adjustment Mechanism: Implications for Developing Countries", UNCTAD, July 2021

The Challenge of Carbon Leakage

Where signatories to the Paris Agreement are serious about meeting their obligations under the Paris Agreement, their governments fear that their energy-intensive, trade-exposed (EITE) industries will be put at a competitive disadvantage in global markets. This not an idle fear. Research by the Organization for Economic Cooperation and Development (OECD) estimates that up to 25 percent of global GHG emissions are embodied in goods traded across borders. Emissions-intensive trade is concentrated in a handful of sectors, including chemicals, metals, and electronics.[3] Many of these sectors are poised for growth and expanded trade, particularly involving producers based in developing economies, which could significantly increase global emissions.

The concept of 'carbon leakage' is used to refer to a situation in which tighter emissions regulations in certain jurisdictions lead to a geographical redistribution of the production of carbon-intensive goods towards other jurisdictions with weaker regulations. Whether this takes the form of an actual relocation of industries or simply of a redistribution of production, the underlying environmental problem is the same: emissions at the global level are not reduced, they simply take place elsewhere. Under an extreme case, emissions may even increase if production moves into jurisdictions that allow more carbon-intensive forms of production (sometimes termed "carbon" or "pollution havens").

The UK Government's discussion document on possible means to reduce carbon leakage argues that carbon leakage can take place through three main channels:

- Businesses in jurisdictions with ambitious carbon pricing and climate regulation face higher costs, causing a drop in domestic production and associated emissions, and an expansion elsewhere;
- Differences in the strength of carbon pricing and climate regulation influence investment decisions, causing a shift in future production and associated emissions elsewhere; and/or
- Reduced demand for fossil fuels due to policy measures in some jurisdictions could impact international fossil fuel prices, increasing incentives for carbon-intensive production involving the use of fossil fuels elsewhere.[4]

As such, the issue is complex and will require further analysis as the consideration of CBAMs continues.

[3] OECD CO2 Emissions embodied in international trade (TECO2) database, 2019, "Carbon dioxide emissions embodied in international trade".

[4] "Addressing Carbon Leakage to Support Decarbonisation", UK Government Discussion Document, March 2023 (p22)

Overview of CBAM Proposals: Definitions, Objectives and Regulatory Nature

CBAMs are an emerging set of policy tools that aim to prevent carbon-intensive economic activity from moving out of jurisdictions with relatively stringent climate policies and into those with relatively less stringent policies. To date most of the concerns raised on the impact of such tools have taken place in the context of trade policy. In this context, CBAMs are being conceived as levies or tariffs that will equalise the price of carbon between domestic products and imports. In this situation, the introduction of CBAMs appear more domestically viable in those jurisdictions that can readily establish a price for carbon, such as those operating an emissions trading scheme.

In the broader context, however, the term 'CBAM' can be used to encompass a range of trade-related equalisation measures used to replicate border measures to adjust for differences in emissions standards between jurisdictions. For example, the application of an internal tax on a product at the point of consumption, whether produced domestically or abroad (a consumption tax), may be considered. In this situation, those jurisdictions which seek to reduce emissions using alternatives to an emissions trading scheme may find it possible to apply CBAMs.

IMF analysis argues that CBAMs are being considered to fulfil three main objectives:

- To help preserve the competitiveness of domestic industries in the presence of domestic carbon pricing, particularly for energy-intensive, trade-exposed (EITE) industries - this improves economic efficiency in the sense of preventing distortions in the relative prices of domestic and foreign goods (i.e., clean and polluting industries at home and abroad are treated alike) and can aid the political acceptability of carbon pricing;
- To reduce the risk of emissions leakage, that is, partially offsetting emissions increases in other jurisdictions induced by domestic mitigation policy - this objective signals a concern not only with national welfare but with global welfare more generally; and
- At an international level, some have stressed that CBAMs may strengthen incentives for carbon pricing and mitigation action in other jurisdictions - there is a direct fiscal incentive to the extent that exporting jurisdictions effectively forgo revenue collected by the importing jurisdictions with a CBAM in place. As such, CBAMs might help to strengthen the international attractiveness of carbon pricing schemes.[5]

While competitiveness concerns apply in principle to all traded items, the policy focus has been on EITE industries. This is because costs for these industries are most heavily increased by raised carbon prices (since their production is energy intensive) and with raised prices, there is a reasonable presumption that demand for their products will shift significantly from domestic to foreign suppliers. Moreover, EITE industries are typically 80 percent or more of manufacturing emissions—though manufacturing is usually around 10-30 percent

[5] Keen Michael, Parry Ian and Road James, IMF working paper "Border Carbon Adjustments: Rationale, Design and Impact", September 2021

of nationwide emissions.[6] EITE industries may also have particular political sensitivities, given that employment effects of carbon pricing may be larger and more visible than for other sectors.

Primary examples of EITE industries include iron, steel, aluminium, refined petroleum products, pharmaceuticals, plastics, glass, ceramics, cement, textiles and wood products. To date, many jurisdictions have addressed the competitiveness concerns that arise from carbon leakage by either exempting these industries from or reducing the impact of emissions trading schemes and other measures designed to tackle carbon emissions.

CBAMs have long been considered as a form of regulatory regime but no national jurisdictions have as yet put them in place. (Those that are now moving to implement such regimes or are considering doing so are described in the next section.). However, in 2010, the OECD developed a set of principles for considering the potential impact of measures such as CBAMs to address competitiveness and carbon leakage objectives in terms of their impact on EITE industries. These principles are set out in Table 1.

These principles provide a useful set of criteria under which existing and prospective CBAMs can be considered. In the APEC context, the political economy principles outlined in table 1 could be expanded to encompass the impact of CBAMs on the trade flows, supply chains and the trading environment as well as their consistency with WTO rules.

[6] P7, IMF Working Paper

Table 1: Principles for Developing Measures to Reduce Adverse Impacts on International Competitiveness and Climate Leakage from Climate Policy[7]

Principle	Description	Indicators for Evaluation (quantitative and qualitative)
Effectiveness in addressing international competitiveness concerns	Policymakers should evaluate whether measures achieve their objectives such as retaining market share of EITE industries, reducing job losses or eliminating competitiveness related emission leakage.	• Sectoral output and employment • Sectoral profits and market share • International trade and investment flows • Emissions and leakage rates
Economic Efficiency	Policy makers should minimise costs to the economy from the imposition of measures. For example, the overall cost of achieving a given climate objective will be increased if measures result in the lowering of emissions requirements for some domestic EITE industries.	• Domestic welfare of GDP • Changes in carbon price • Cost per ton of leakage reduced • Foregone government revenues
Incentives for GHG reductions and innovation	Given the stringency of proposed climate objectives over time, measures should maintain significant incentives for GHG abatement and innovation. Exempting some sectors from climate policy would reduce their incentives for abating GHG emissions.	• Incentives for emissions (such as price signals) • Innovation impacts (patents and changes in abatement costs)
International Political Economy	Effects on other jurisdictions on other jurisdictions and on international climate considerations should be considered.	• International GDP or welfare changes (eg impacts on poor).
Domestic Political Considerations	Trade-offs between stakeholders should be considered as well as impacts on government revenues and transfers.	• Impact on affected stakeholder groups (eg employment, carbon prices, output)
Implementability	The administrative costs and implementation burden should be evaluated by policymakers for each measure	• Estimates of implementation burden • Ability to obtain data to implement policy measures

[7] OECD Policy Brief "Addressing International Competitiveness in a World on Non-Uniform Carbon Pricing" 2010

Measuring GHG Emissions Through Carbon Accounting

A key issue for firms seeking to lower their GHG emissions as well as for implementing CBAMs is an effective and universally recognised system of carbon accounting for business. Up to the present, the main tool available has been the Corporate Accounting and Reporting Standard under the the Green House Gas Protocol, the first version of which was released in 2001. It provides guidelines for companies to adopt when disclosing their carbon emissions. Scopes 1, 2, and 3 are used to classify emissions. Scope 1 considers direct GHG emissions from sources under the organisation's ownership or control. Scope 2 takes into consideration the GHGs emissions produced by the organisation's use of purchased electricity. All other indirect emissions may be handled under Scope 3, an optional reporting category. There are also three ISO 14064 standards relevant to GHG accounting: the ISO 14064 standards series I, II, and III, developed by the international standards organisation.

However, the practice of carbon accounting is still in its infancy. In a recent paper, Mahto, Mahan and Saxena argue:

"… the practice of carbon accounting still faces several obstacles such as data quality issues, measurement and reporting inconsistencies, platforms that are in silos, and digital infrastructure challenges. Greenhouse gas estimates are subject to significant uncertainty, and most of the largest emitting events under Scope 3 are often difficult to include in inventories. Inconsistencies highlight the need for thorough and open data evaluation. Additionally, capturing Scope 3 emissions involves methodological difficulties, including tracking the carbon content of a product as it moves down the supply chain. Without addressing these problems, it is difficult to compare, combine, and share reliable data. The difficulty of tracking emissions from multiple suppliers and customers across multi-tier value chains makes it virtually impossible for a company to have a reliable estimate of its Scope 3 numbers. These roadblocks can hinder internal reliability and data exchange."[8]

Mahto, Mahan and Saxena go on to argue that G20 should take the leadership in developing effective global standards for carbon accounting. However, this is an area where APEC could also play a role as is discussed later in this paper.

[8] Mahto RK, Saxena S and Mahan K, "Global Standards for Carbon Accounting: An Agenda for G20", T20 Policy Brief, May 2023

PART 2: GLOBAL SCAN OF JURISDICTIONS IMPLEMENTING OR CONSIDERING CBAM REGIMES

The European Union[9]

To date, the EU is the only national jurisdiction to have agreed on a CBAM scheme for future implementation. Following the EU'S pioneering of "large-scale" carbon pricing under the EU ETS (established in 2005), the European Commission put forward the Green New Deal in December 2019. This commits the EU to reaching carbon neutrality by 2050. As part of the goal, the EU aims to reduce net GHG emissions by at least 55 % by 2030, compared to 1990 levels. In July 2021, the EU announced a set of proposals (also known as the 'Fit for 55' package) that would deliver the Green Deal and help achieve the emissions reduction target while creating new social and economic opportunities. As part of this package, a CBAM would be gradually introduced for certain imports.

On 25 April 2023, the European Council adopted a new law to implement the CBAM. This was the last stage of the EU's decision-making process.

Objectives

The aim of the CBAM is to equalise the carbon price between domestic and foreign products, thereby limiting carbon leakage. The measure is also seen as encouraging other jurisdictions to adopt carbon pricing. The CBAM will extend to imports from almost all third parties, including the United Kingdom (with the possible exception of Northern Ireland). Exemptions will be given to imports from Iceland, Liechtenstein and Norway, which participate in the EU ETS, and Switzerland, whose ETS is linked to the EU ETS. In March 2022, the European Council, in the context of its input on the CBAM, suggested the establishment of a 'climate club' through an alliance of jurisdictions that have carbon pricing instruments or other comparable instruments in place. The new law holds open the possibility that such a club could be established, which would presumably lead to imports from parties to the club also being exempted from the application of the CBAM. (See below for an analysis on climate clubs.)

Product Coverage

Product coverage of the CBAM will be phased in as follows:

- Starting October 1, 2023, CBAM will apply to EU imports of iron & steel, aluminium, electricity, certain fertilisers, cement and hydrogen, as well as certain precursors (i.e. cathode active materials) and a limited number of downstream products such as screws and bolts. There is no materiality threshold.
- For organic chemicals and polymers, which were previously included in draft CBAM regulation approved by the EU Parliament in July 2022, the implementation was

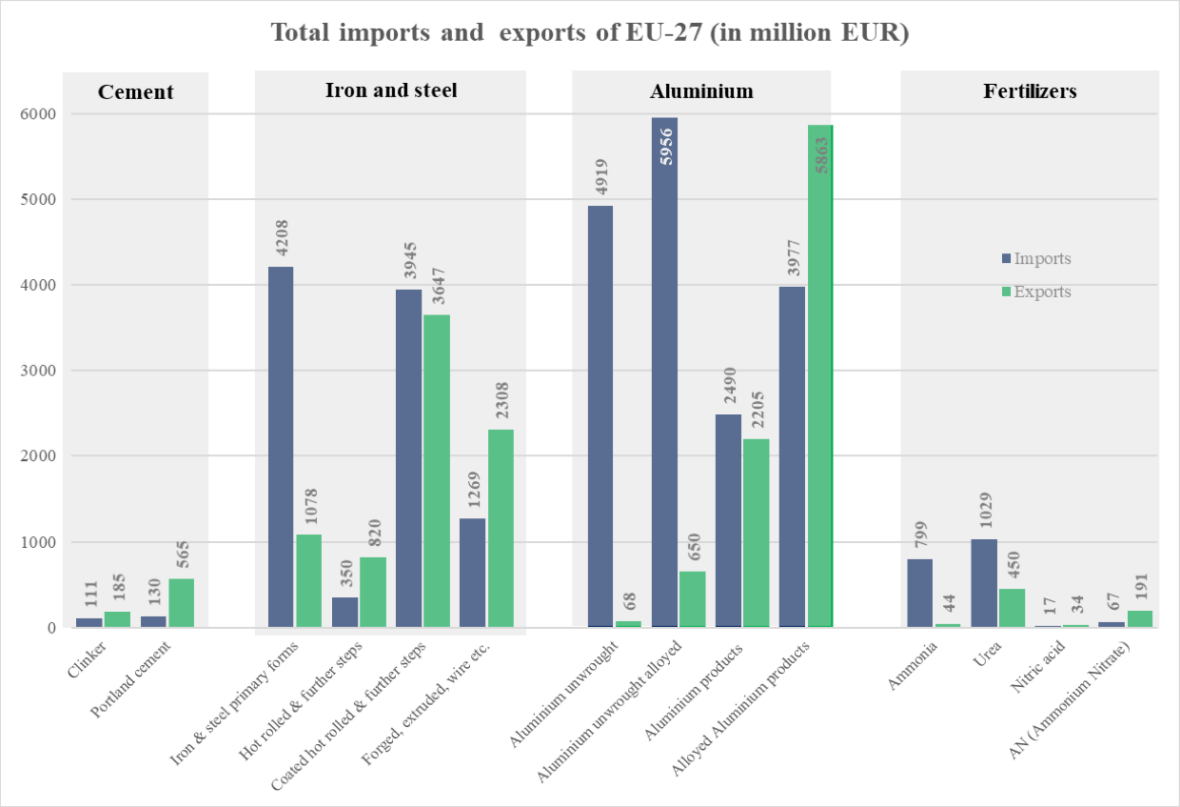
[9] Material for this section has been drawn from a range of EU sources including European Commission's web page "Carbon Border Adjustment Mechanism", European Commission, "Impact Assessment Report Accompanying the Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism", July 2021 and EU Parliament, "EU Carbon Border Adjustment Mechanism: Implications for Climate and Competitiveness", EU Legislation Briefing, European Union, 2023

postponed and decisions with this respect will be taken during the interim period (by 2026). Inclusion of polymers and organic chemicals into the CBAM scope would include many oil and gas downstream products.

- By 2030, the scope of CBAM is expected to extend to all product groups covered by EU ETS or to the list of products with a risk of carbon leakage (i.e. crude petroleum and petroleum products, inorganic basic chemicals, industrial gases, synthetic rubber, non-ferrous metals and others). The EU shall also assess the methodology for indirect emissions and the possibility to include more downstream products.

Figure 1 shows the value of imports and exports of selected CBAM products to the EU. Traditionally, by far the most trade has occurred in iron and steel and aluminium

Figure 1: Value of Imports and Exports of Selected CBAM Products to the EU in 2019.



Sourced from European Commission, "Impact Assessment Report Accompanying the Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism" July 2021

Emissions Coverage

The Commission has proposed that the CBAM would only apply to direct emissions (scope 1) released during the production process of the goods covered by it. Indirect emissions (scope 2 and scope 3), such as the emissions generated from electricity used for manufacturing, heating or cooling during the production process, will not be used as a basis for the CBAM charge. This is meant to ensure administrative simplicity, as indirect emissions come from sources other than the reporting entity and can therefore be hard to measure.

However, the Commission proposes that declarants would report their embedded emissions corresponding to the previous quarter's imports, detailing direct and indirect emissions, and any possible carbon price already paid abroad. The CBAM may be extended in future iterations to encompass indirect emissions from purchased energy (scope 2). In addition, the Commission can define the calculation methods, including system boundaries, for embedded emissions at a later stage through delegated acts.

Phase-In Provisions

The CBAM aims to impose a levy on European importers with the levy being calculated using the weekly average price of ETS auctions. This approach aims to ensure that the price foreign producers pay for carbon emissions will equal the price European producers pay without the administrative burden of daily calculations.

A phase-in period will take place between October 2023 and December 2025 where importers will be obligated to provide limited reporting data to the EU but will not be required to pay the levy. During the transitional phase, companies will need to file quarterly CBAM reports with an EU or a national CBAM authority. The CBAM report will list the covered imported items broken down into specific categories, i.e., emissions per product type, per producer and per jurisdiction. Emissions levels will be expressed in tonnes and include both direct and indirect emissions. The declarant (i.e., the party responsible for importing the products into the EU) will be responsible for calculating the “embedded emission levels”. If the importer is not established in the EU, the exporter will need to appoint an EU-established declarant to carry out the importer’s CBAM obligations.

As from 1 January 2026, a CBAM licence will be required to import covered products, and importers of such products will be required to purchase and surrender CBAM certificates for the embedded emissions of the products at a price equivalent to that established for ETS allowances. In addition, an annual declaration will have to be submitted to the CBAM registry (which will be set up by the European Commission) by 31 May of the following year specifying the product, country, producer, quantity and direct/indirect embedded emissions, as well as a copy of the verification report issued by an accredited verifier.

From 2026 to 2035, the Commission is planning to progressively phase out free allocations to the sectors concerned under its ETS. Until free allocations end in 2035, the CBAM will only apply to the proportion of emissions that do not receive free allowances under the EU ETS.

Calculating the Levy

The price of the CBAM certificates will be linked to the ETS, which will provide a price determined by the market. Starting in 2026, importers will be able to purchase certificates from the CBAM authority, with the price based on the weekly average of the ETS price. If the ETS price is low, it will be possible to bulk purchase certificates, but unused certificates cannot be sold on the open market. Instead, they will have to be surrendered to the CBAM authority and a refund provided. Importers will need to have sufficient certificates to cover the cost of CBAM charges. During the period when the allocation of free allowances is being

reduced, the CBAM levy will only apply to those emissions above the free allocation received by EU producers, in order to ensure that importers receive "the same" treatment as EU producers.

If an imported product is subject to carbon levies in the jurisdiction of origin, this levy can be deducted from the CBAM levy when the product is released for free circulation in the EU. On the other hand, companies that are unable to provide accurate data will be charged CBAM levies at a default rate based on the 10% worst emitting producers in the region from which the goods are imported. The submitted figures will have to be verified by a third party. Penalties will apply for noncompliance with CBAM and may include suspension of the importer's licence.

Enforcement and Anti-Circumvention

The EU CBAM also has provisions for enforcement and anti-circumvention. Importing firms that fail to surrender the required number of CBAM certificates will be subject to fines corresponding to the number of certificates which they fail to surrender (similar to penalties under the EU ETS). Attempts to circumvent the CBAM by reclassifying goods will be addressed through a notification system. EU member states will be able to alert the Commission if they detect a significant change in trade flows pointing to circumvention. The Commission will also monitor trade flows at the level of the EU itself.

Revenues

At this stage, it seems that revenues will go direct to the EU budget without specifying their exact destination. Interestingly, however, an amendment to the law approved by the European Parliament requires financial support to be provided to LDCs in order to generally assist them in their efforts towards decarbonization. Going a step further and using revenues for international climate action rather than for domestic industrial support would arguably strengthen the CBAM's alignment with its underlying carbon leakage narrative.

The Position of Exporters

For European exporters, things will become more difficult. On one hand, the current system of "free" allocation of ETS allowances will be phased out between 2026 and 2034 with a progressively increasing pace. On the other hand, there is currently no policy in place for export rebates to replace these "free" allowances. The European Commission's reasoning for not including export rebates is that they would likely violate the World Trade Organization's (WTO) rules against subsidies. More generally, including export rebates may undermine the scheme's ability to counteract carbon leakage by disincentivizing emission reductions in export-oriented sectors. The European Commission discarded this option after acknowledging that "[t]he inclusion of refunds of a carbon price paid in the EU would

undermine the global credibility of EU's raised climate ambitions." [10] Instead, it has promised to explore other WTO-compliant ways to prevent carbon leakage on exports.

Other Jurisdictions Considering CBAMs

Some other jurisdictions are considering CBAMS (and in one case, the state of California has gone as far as implementing a CBAM for one sector). These jurisdictions include:

The United Kingdom

The UK ETS was launched in 2021 to replace the former EU ETS. Like the EU, up until the present, carbon leakage under the ETS has been dealt with through free allocation to affected sectors.

On 30 March 2023, HM Treasury and the Department for Energy Security and Net Zero released a discussion document on potential policy measures to mitigate carbon leakage and support decarbonisation of UK industry. Such policies are being considered for the following sectors: cement, chemicals, glass, iron and steel, non-ferrous metals, non-metallic minerals, paper and pulp, refining, fertilisers and power generation.

One of the options that the consultation is exploring is the development of a separate UK CBAM which, like the EU CBAM, would apply to imported products to ensure they are subject to a comparable carbon price that incurred by UK-based producers. The consultation timeline indicates that the earliest potential introduction of a CBAM (for a limited number of sectors) would be 2026 which would be in line with the UK ETS reforms on free allowances (as well as the full implementation of the EU CBAM).

The discussion document indicates acute awareness of the complexities of implementing a CBAMs regime and seeks views on simpler methods to assess the carbon intensity of affected imports. At one point it goes as far as to say "ultimately, it may not be appropriate or necessary to introduce additional carbon leakage measures for every product or sector when considered against other factors, including the potential for additional administrative and regulatory burdens it could create. The decision to introduce a CBAM… for a sector would need to be well- evidenced and proportionate." [11]

It is perhaps for this reason that other options are being considered in the consultation document. These include:

[10] European Commission, "Impact Assessment Report Accompanying the Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism", July 2021

[11] P31 "Addressing Carbon Leakage to Support Decarbonisation – A Consultation on Strategic Goals, Policy Options and Implementation Considerations", Department of Energy Security and Net Zero and HM Treasury, March 2023

- Mandatory product standards which would set an upper limit on embodied emissions for individual products placed on the UK market, or produced in the UK, prohibiting products that are more emissions intensive than a defined limit;
- Additional demand side policies which would aim to grow the market for low carbon products. Options could include voluntary product standards, product labelling, changing public procurement guidelines to prioritise low carbon products and encouraging private producers to do the same.

Canada

In August 2021, Canada's Department of Finance released a discussion document entitled "Exploring Border Carbon Adjustments for Canada". It noted that "A Healthy Environment for a Healthy Economy", Canada's strengthened climate plan released in 2020, raised a number of issues around carbon leakage and domestic competitiveness as Canada put in place policies to reduce its emissions. It asked whether import levies under a CBAM made sense in Canada's situation but also noted that because of the complex challenges in implementing these, other options should be considered. These included a domestic tax or charge levied on both high-carbon domestic and imported products or a requirement that emission allowances be purchased for imported goods based on their carbon intensity.

Little further has been heard from Canada since the release of this document. This may in part reflect the complexity of Canada's domestic situation where Canada has implemented a flexible approach to carbon pricing in which provinces and territories can design their own pricing system provided they meet the federal minimum benchmark. The approaches chosen by the provinces range from operating their own cap-in-trade scheme, applying provincial carbon taxes, partially or fully defaulting to the federal ETS or some combination of these. Canada's trade relationship will also be a factor in its current considerations given that the United States runs a quite different regime for emissions reduction.

The United States

In the United States, there have been various legislative efforts to introduce CBAMs at the border such as the 2021 Coons-Peters Bill. This bill attempts to create a level playing field for US companies that incur regulatory costs in complying with emission limits by levying equivalent fees on imports in trade-exposed sectors. This is quite different from the EU CBAM which is based on the EU ETS.

Experts have expressed scepticism on the viability of such fees in the absence of nationwide carbon charges or an ETS.[12] The Biden administration has not commented on the Coons-Peters Bill, but in a 2021 interview with Time magazine, John Kerry, Special Presidential Envoy on Climate, emphasised the importance of multilateral efforts to tackle climate

[12] P10, Huffbauer GC, Kim J and Schott JJ, Petersen Institute Policy Brief "Can EU Carbon Border Measures Propel WTO Climate Talks?" November 2021

change. Kerry noted that “it’s premature to be discussing whether or not you ought to unilaterally go off and do a CBAM.”[13]

It should be noted that California has a state-wide ETS covering around 85 per cent of the state’s carbon emissions. While a free- allocation system is in place to counter carbon leakage from most trade-exposed sectors, a type of CBAM is in operation for the electricity sector. This sector is heavily interconnected with neighbouring states as part of the Western Interconnection, as well as with parts of Canada and Mexico. Importers of are required to submit emissions permits for their imported electricity based on their reported emissions intensities or a default factor for unspecified power generation sources. (Electricity is relatively straightforward in CBAM design since it is a homogeneous product and data on emissions produced during power generation are generally available and of good quality.)[14]

[13] Justin Warland, “John Kerry on Border Carbon Tax: The US Doesn’t Want to Push Others Away,” Time, July 26, 2021.

[14] Emerson C and Moritsch S, “Making WTO Border Adjustment Proposals WTO-Compliant”, KPMG, March 2021

PART 3: WTO COMPLIANCE OF CBAMS

Key WTO Rules

In a 2021 article, James Bacchus, a former chair of the WTO's Appellate Body, made a detailed assessment of the WTO compatibility of CBAMs.[15] He outlined the WTO rules that a jurisdiction putting in place a CBAM would need to comply with. These include:

- The CBAM would need to be consistent with the most-favoured-nation treatment rule that requires that any advantage granted to the imported products of one WTO member must be accorded immediately and unconditionally to the like products originating from all other WTO members (GATT Article I). The CBAM would violate the most favoured-nation treatment rule if it discriminated between and among like imported products originating in different WTO members based on their carbon content;
- A WTO member could not use a CBAM to apply a charge on imported products in excess of the ceilings on customs duties and other charges connected with importation that have been agreed in its WTO schedule of commitments (GATT Article II). The member might seek to show that this rule does not apply here because the CBAM was not be a border measure but rather an internal rule;
- If the CBAM were deemed a requirement of an internal regulation, it still could be inconsistent with the WTO national treatment rule that requires that imported products be given no less favourable treatment than that given to like domestic products (GATT Article III:4). This provision would also extend to any transitional provisions that would apply both to domestic producers and importers as the CBAM is brought into force.

Even if a CBAM violates these rules, the WTO member applying it could seek justification under GATT Article XX (general exceptions), claiming that the system is essential to tackle climate change. It could argue that the CBAM falls within the scope of one or more of the Article XX exceptions, such as GATT Article XX(b) ("necessary to protect human, animal or plant life or health") or GATT Article XX(g) ("relating to the conservation of exhaustible natural resources"). Even if the CBAM falls within the exceptions, the CBAM would still need to conform to the chapeau to Article XX and not be "a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail" or "a disguised restriction on international trade."

[15] Bacchus J "Legal Issues with the European Carbon Border Adjustment Mechanism" Cato Institute, August 2021

The EU Has Sought to Achieve WTO Compliance

To date, only the EU has a prospective CBAMs regime the provisions for which are sufficiently developed to assess WTO compliance. In designing the regime, the European Commission has clearly given a great deal of thought to achieving such compliance.[16]

In the first instance, this can be seen in the decision not to extend the regime to exports, even though the logic of industry policy would indicate that it should be. This will leave the competitiveness of EU domestic production shielded by the CBAM while the competitiveness of EU exports will be undermined in third markets by competing products that do not need to meet the same costs of carbon. The European Commission took this call because of the high risk that any payment to exporters to level the playing field would be deemed an export subsidy under WTO rules. In doing so, it also gave precedence to the climate rather than the industry policy objectives of the scheme by ensuring that EU exporters were not incentivised to produce with higher levels of carbon intensity than producers for the domestic market.

The Commission has also been careful that the CBAM, as it applies to the domestic market, gives primacy to climate over industry policy objectives. In the EU's proposal, several features are informed by potential WTO constraints. The preference for actual carbon declarations, the mechanism to reduce the adjustment based on the number of EU emission allowances allocated for free, and the choice to credit explicit carbon pricing policies of other jurisdictions are all elements that are arguably intended to make the EU CBAM "mirror" the EU ETS. The key consideration is to show that no discrimination is occurring between domestic and imported like products. Overall, these design features purport to align the scheme to the equalization logic that legitimizes the idea that CBAMs are a means to counteract carbon leakage through the restoration of "fair" competition.

Some of these points are arguable as is outlined in the following section. Accordingly, the EU CBAM has sought to include design features that are constructed to strengthen an "environmental" defence under Article XX of GATT. On the one hand, the Commission is very careful in evaluating options that favour industry policy and/or may compromise the environmental effectiveness of the CBAM. It warns against the risks entailed by the inclusion of export rebates; it envisages the gradual phase out of the transitional application of free allocation of EU emission allowances while mitigating risks of double-protection; and it gives preference to actual carbon declarations instead of default values. On the other hand, whenever it deviates from a formal equalization logic, it strives to show that this does not impair a climate-consistent outcome. For instance, the exemption of imports coming from jurisdictions with emission trading schemes linked to the EU ETS seeks to account for the equivalence in carbon pricing that exists as a result of these schemes.

[16] P209, Espa, I "Reconciling the Climate/Industrial Interplay of CBAMs, what role for the WTO?" Cambridge University Press, 2022

Features of the EU CBAM Likely to be Challenged in the WTO

It is now highly likely that the EU CBAM will be subject to challenge in the WTO. India has already announced its intention to do so[17] and it will likely be followed by others, particularly from among the group of WTO members whose exports will be most affected.

It is also likely that the following features of the EU's regime will be amongst those subject to challenge[18]:

- Origin-based discrimination is virtually certain to be raised since those parties that are either integrated with or linked to the EU ETS are exempted from the CBAM (with the likely claim that this is in violation of the WTO's most-favoured nation clause (Article I of GATT);
- Because the CBAM could apply a charge on imports in excess of the ceilings on customs duties and other charges that have been agreed by the EU in its schedule of commitments, the contention could be made that the CBAM is inconsistent with GATT Article II. To the likely response to that this is just part of an internal regime, litigants are likely to further contend that it is the act of importing that triggers these specific provisions. There is significant WTO jurisprudence in this area which generally favours exporters[19];
- Also likely to be raised are the application of default values (which are particularly challenging for developing economy exporters), the precise methodology used to take into account the free allocation of allowances and the carbon price imposed in third markets, and the transitional provisions, should these be seen to favour domestic producers at the expense of imports. These provisions will be portrayed as breaching the WTO's national treatment rules (Article III:4 of the GATT).

To make an "environmental" defence under Article XX of the GATT, the EU would need to be able to demonstrate that it has consistently put climate change objectives ahead of industry policy or competitiveness concerns. While it has made a valiant attempt, it does not necessarily always succeed in doing this to the extent that there still remain troublesome features such as the application of default values, the precise methodology used to take into account the free allocation of allowances and the carbon price imposed in third countries, and the transitional provisions. To a lesser extent, the lack of exemptions for LDCs and small island developing states and the lack of specific commitments as to the use of CBAM revenues may also be considered a missed opportunity from a climate standpoint.

Bacchus notes that one of the key issues around Article XX is the extraterritorial application of the CBAM. But he goes on to argue that the extraterritorial application is likely to prove less significant in a WTO dispute than the question of how it is applied. Bacchus argues the EU will also have to prove that CBAM has been applied in a manner justifying its entitlement to one of the general exceptions. The CBAM must not be "applied in a manner which would

[17] "India Plans to Challenge EU Carbon Tax at WTO", Reuters, 17 May 2023
[18] P212, Espa, I "Reconciling the Climate/Industrial Interplay of CBAMs, what role for the WTO?" Cambridge University Press, 2022

[19] Pp 5-6 Bacchus J "Legal Issues with the European Carbon Border Adjustment Mechanism" Cato Institute, August 2021

constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail," and it must not be "a disguised restriction on international trade."

Bacchus goes on to state:

"As to whether the CBAM will be "arbitrary or unjustifiable discrimination," a long string of WTO jurisprudence dating back decades shows that a measure must be evenhanded in its application to be entitled to one of the general exceptions. Will the CBAM be evenhanded if the EU imposes its own climate standard on its trading partners without giving them a chance to suggest changes in that standard or to appeal the application of that standard to their products? It will not be enough for the EU simply to explain its chosen standard to these affected countries; the EU must engage in the due process of a mutual dialogue with them before setting and applying the standard in a way that takes the views of its trading partners into account.

Also, if the EU grants exceptions to the CBAM emissions certificate requirements to some WTO members solely based on what the EU perceives as the sufficiency of their carbon pricing and their other climate actions, will that discrimination be arbitrary or unjustifiable? What is the proper measure of such sufficiency? Is it whether another WTO member has enacted carbon pricing, whether it is keeping its promises of emissions-cutting under the Paris climate agreement, whether it has pledged to increase those promised emissions cuts, or something else? So far, the climate negotiators have been unable to agree on a single global standard for calculating carbon and other greenhouse gas emissions. Is it arbitrary or unjustifiable discrimination if the EU imposes its own standard on other countries?" [20]

The European Commission will be fully aware that the EU CBAM will be subject to challenge in the WTO and the grounds on which it will be challenged. However, the process is likely to take many years given the complexity of the issues, the likelihood that any initial rulings would be appealed and the situation with the WTO disputes panel (which is currently inoperative because it has been impossible to agree on new panellists). By the end of this process, the Commission would be hoping that it has succeeded in what appears to be its primary objective – to have laid the ground for full ETS coverage of domestic European industry in the sectors concerned.

[20] Pp 8-9 Bacchus J "Legal Issues with the European Carbon Border Adjustment Mechanism" Cato Institute, August 2021

PART 4: LIKELY IMPACTS OF CBAMS

This section examines the likely emissions and trade impacts of CBAMs. Again, most of the analysis is mostly drawn from the EU case given the EU is the only jurisdiction currently moving to put in place a CBAM and as such, the only example for which modelling is available. However, it is likely that many of the impacts identified in this section would apply to other jurisdictions (to a greater or lesser extent) should they move to put in place CBAMs. The section provides a general analysis of the impact of EU CBAM but also seeks to draw out the specific implications for APEC economies.

Emissions Impacts

There have been many attempts to model the emissions impacts of the EU CBAM. Most of these tell much the same story. The CBAM is likely to have some impact on carbon leakage from the EU but a minimal impact on emissions, both in the EU and in exporting countries. Within the EU almost all the reduction in emissions results from the reduction and eventual elimination of free allocations to EU producers rather than the CBAM itself.

In its own impact assessment report, the European Commission estimates that its preferred option for a CBAM would lead to a 13.8 % reduction in EU emissions for the CBAM sectors relative to the baseline in 2030. In the rest of the world, emissions in the CBAM sectors would decrease by about 0.3 %. However, most of the EU reduction would result from the phase-out of free allocations to EU producers. Carbon leakage would be mitigated to a degree (estimated at -29 % in the CBAM sectors in 2030), while the negative effects on gross domestic product and consumption are estimated to be very limited.[21]

Prior modelling from UNCTAD tells as similar story. With the imposition of carbon taxes, the magnitude of emissions reductions and production losses are significant in the European Union, and without synchronous implementation of a CBAM, the European Union would experience substantial carbon leakage and export declines. With a $44 per tonne carbon tax, leakage is cut by more than half, from 13.3 to 5.2 per cent, suggesting that the CBAM can be an effective instrument for substantially reducing carbon leakage. However, the CBAM's value in mitigating climate change is limited. Whereas a potential European Union domestic carbon price of $44 on all emissions reduces its total emissions by 13 per cent – and by 21 per cent in the case of a carbon price of $88 – the introduction of the CBAM adds another 0.8 to 1.3 percentage points. So, in the event that the European Union ultimately deploys these instruments, estimations suggest that their positive effect on reducing emissions will come mainly from the domestic carbon pricing. [22]

Trade Impacts

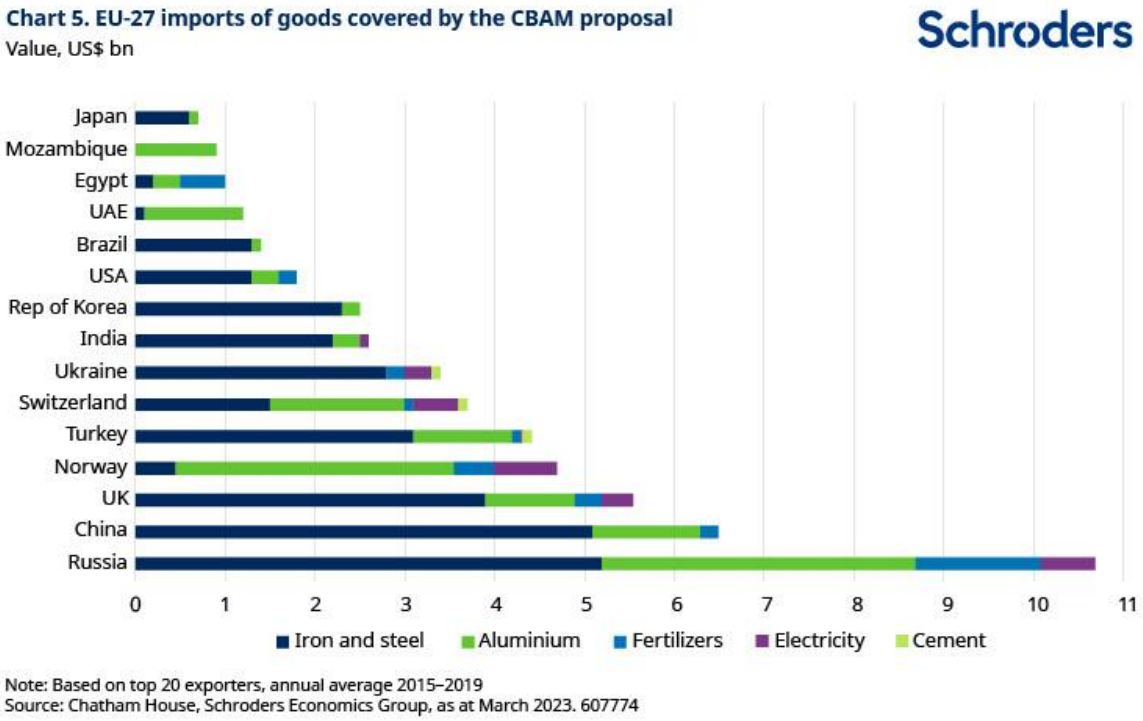
The UNCTAD modelling further suggests that the overall impact on trade in the sectors concerned will also be modest. The simple average reduction in exports by developing

[21] P4, "EU Carbon Border Adjustment Mechanism: Implications for Climate and Competitiveness", EU Legislation Briefing, European Union, 2023
[22] P23, "European Union Carbon Border Adjustment Mechanism: Implications for Developing Countries", UNCTAD, July 2021

economies across the targeted carbon intensive sectors is only 1.4 per cent when the CBAM is implemented with a $44 per tonne tax, and just under 2.4 per cent when implemented by an $88 per tonne tax. It must be pointed out that in these two scenarios, however, developed economies do not suffer export declines. This is expected since developed economy producers, as a whole, are modelled to employ less carbon intensive production methods in the targeted sectors than their developing counterparts.

Despite the modest effects overall, it is worth digging into the impact that CBAMs will have on individual economies. Those economies most affected by CBAMs in simple US dollar value over the period 2015-2019 are represented in Figure 2. They include APEC members China, Russia, Korea, the United States and Japan, with Russia and China being the worst affected.

Figure 2: EU Imports of Goods Covered by the CBAM



[23]

However, it is perhaps more useful to look at the relative importance of EU imports of CBAM goods from largest exporting economies as a percentage of total EU imports from those economies. This is set out in table 2 and show these percentages to be quite modest. For APEC economies, the highest are Russia at 7.4% and Korea at 5.4% with China sitting at 1.2% and the United States at 0.6%.

[23] Drawn from Schroders "Response to Climate Change Set to Accelerate as Government Face Increasing Physical Risks" Investment Insights, 2023

Table 2: Top 10 Sources of CBAM Goods, by Source 2020[24]

Source	**Total EU Goods Imports ($million)**	**Total EU Imports of CBAM Goods ($million)**	**Percentage EU Goods Imports**
Russia	116,558	8,576	7.4
China	471,218	5,635	1.2
Turkey	76,619	5,401	7.0
United Kingdom	205,541	5,401	2.6
Ukraine	20,178	3,183	15.8
South Korea	54,115	2,931	5.4
India	40,521	2,780	6.9
Serbia	13,160	1,434	10.9
United States	248,976	1,394	0.6
United Arab Emirates	10,610	1,082	10.2
Total	**1,257,496**	**37,817**	**3.0**

The overall impact of CBAM on an exporter will depend on the size of exports covered by the mechanism as a share of total exports to the EU. This will allow the impact of CBAMs on both large and small exporters to be assessed. A 2022 study by the French Development Agency[25] showed that even if exporters such as Russia, China, Turkey and the Ukraine could be considered those most affected by CBAM by virtue of their trade volume with the EU, the mechanism's relative impact will be higher for other economies. The research highlighted that, based on 2019 figures, only the Ukraine is among the top five in terms of the share represented by these exports and, hence, the relative impact of the mechanism.

Moreover, the research showed that many of the EU's smaller trade partners are at risk because of their high dependence on exports of CBAM products to the EU. Mozambique is by far the most affected economy in relative terms, as almost 20 percent of its total exports are products covered by CBAM—or rather, to a major degree, a single good: aluminium. According to this measure, most of the countries most affected by CBAM—such as Mozambique, Bosnia and Herzegovina, Ukraine, Serbia, North Macedonia, Montenegro, Zimbabwe, Moldova, and Albania—are either low-income trade partners in Africa or LDCs or developing economies in the EU's neighbourhood. Additionally, Russia and Turkey, ranked first and third by total CBAM exports, drop to fourteenth and thirteenth place, respectively, in terms of their export of CBAM goods as a percentage of their total exports to the EU. China and Korea do not even make the list of the top 40 most affected exporters.

It is notable, then, that there are no APEC economies listed amongst the exporters most affected by the EU CBAM. Furthermore, Russia, China and Korea, where discernible future impacts can still be measured, are large, sophisticated economies whose exporting firms

[24] Sourced from p6, Huffbauer GC, Kim J and Schott JJ, Petersen Institute Policy Brief "Can EU Carbon Border Measures Propel WTO Climate Talks?" November 2021
[25] Agence France de Development "Impact of CBAMs on the EU's Trade Partners – Consequences for Developing Countries" 2022

have several options for navigating the challenges posed by CBAMs (as is discussed further in the next section).

At the same time, for exporting firms from the Asia-Pacific region, such challenges will still be significant with one study estimating that the CBAM may add 10 per cent on average to the cost of applicable commodities entering the EU[26]. It is timely, therefore, to analyse the likely impacts of the EU CBAM on supply chains, including in the Asia-Pacific region.

Supply Chain Impacts

The decarbonisation consultancy and advocacy group, ENGIE, has analysed the costs that will be imposed by the implementation of the CBAM within the EU itself. The results of this analysis are set out in Figure 3. This analysis shows where commodity buyers in the EU will be directly impacted by the new CBAM levies. As is shown, the construction, agriculture, automotive and packaging manufacturing sectors in the EU could be highly impacted by an increase of their primary raw materials supply costs due to the CBAM. For example, ENGIE estimates that there could be an incremental increase in the price of products such as wheat and corn of around 7% or re-enforced concrete of around 15% when considering CBAM price increases for their main raw materials (i.e., respectively fertilizers or cement & steel).

The increased internal EU costs set out in Figure 3 will in turn be reflected in increased costs and diminished competitiveness for global supply chains supplying the EU market, including those operating out of the Asia-Pacific region. Indeed, costs on the firms participating in these supply chains will be increased further given that they will need to bear most of the costs required to comply with the CBAM process. While notionally the costs are meant to be borne by the EU importer, the reality is that importers will require exporters to provide information needed to comply.

[26]P1, Wagemans S, Bollons N and Genest J-L "What You Need to Know About CBAM – the EU's New Carbon Tariff", ENGIE, April 2023

Figure 3: Estimated Financial Impact of CBAM Commodity Prices Across Key EU Economic Sectors

Sector	Raw materials importance on costs of final products						Potential price increase due to CBAM
	Cement	Electricity	Fertilizers	Iron&Steel	Aluminium	Hydrogen	
Construction *Re-inforced concrete*	● 46% of CAPEX	●	○	● 27% of CAPEX	●	○	● +15% on CAPEX
Agriculture *Wheat and corn farms*	○	○	● 36% of OPEX	○	○	○	● +7% on OPEX
Automotive	○	●	○	●	●	○	●
Packaging	○	●	○	○	●	○	●
Energy infrastructure (incl. RE)	●	●	○	●	●	○	●
Technology & Telecommunications	○	● Data centers	○	●	●	○	●
Aerospace, Aeronautics & Defense	○	●	○	●	●	○	●
Pharmaceutics	○	●	○	○	○	○	●
Consumer goods (F&B, textile, home appliance, etc)	○	●	●	●	●	○	●

Financial impact ● High ● Medium ○ Low or Nul

For exporting firms, the technical and administrative burdens resulting from measuring, reporting, and verifying embedded emissions will be significant. CBAM measurement and verification will likely involve numerous suppliers and vendors, third-party auditors, customs and environmental agencies, and freight and logistics operators, amongst others. Some commentators have argued it might be vulnerable to manipulation, with manufacturers having strong incentives to minimize reporting of carbon emissions.[27] Manipulation is made all the more likely because global accounting standards for emissions are not settled giving exporters some flexibility to represent emissions as Scope 2 or 3 emissions when only Scope 1 emissions are covered by the EU CBAM. Further, there is a risk of exposing market-sensitive information to untrusted third parties, including within the EU. Finally, these processes will have to be updated regularly to account for changes in efficiency and production technologies in order to avoid disincentivizing innovation and diffusion.

It is likely that individual firms will in many cases conclude that the costs of providing this information is too high. They may prefer to pay the default rate for the levy based on the bottom 10% worst emitting producers in the region from which the goods are imported. Furthermore, CBAMs incentivise a range of strategies by exporting firms to seek to (legally) avoid or minimise the costs involved. Exporters might seek to:

[27] See, for example, Koester S, Hart DM and Sly G, "Unworkable Solution: Carbon Border Adjustment Mechanisms and Global Climate Innovation", Information Technology and Innovation Foundation, September 2021

- go up the value chain. For example, if steel and aluminium are subject to CBAMs but finished automobiles (including EVs) are not, exporters might seek to contribute to increased manufacture in their home economies for eventual export to the EU;
- send product from their cleanest plants to the EU while looking to send more emissions intensive product to other markets. This option would particularly apply to transnational firms exporting out several jurisdictions with different emissions management systems;
- trans-ship (and add value) to product through jurisdictions that have been exempted from the EU system but are not themselves operating CBAM regimes.

All these strategies may serve to avoid or minimise the costs resulting from the operation of the EU CBAM. But by requiring the choice of "second best" strategies, they will increase supply chain costs and reduce efficiencies relative to the situation that would prevail were the CBAM not in place. Furthermore, each of them would also avoid the sought reductions in emissions that the EU is seeking across the supply chain as a whole. As such, the emissions content of product sold within the EU may fall but the global reduction in emissions will be much less as product involving higher emissions is shifted elsewhere.

An example that shows that the risks of such transfers (known as resource shuffling) are real is provided by the state of California. As noted earlier, at state level, California operates a CBAM for the electricity sector. There is evidence from California emission reductions in the electricity sector and that many have come through the reduced emissions intensity of imports. But several different analyses also show that there is potential for significant resource shuffling. This is the result of coal power plants in other states no longer sending electricity to California with lower-carbon sources of electricity (such as hydroelectric) from other states meeting the shortfall. The power from coal power plants, meanwhile, is diverted for use in other states. Some studies estimate the magnitude of resource shuffling could be at least several million tons annually. Overall, the result is that the emissions intensity of providing electricity within the United States as a whole is reduced by less than results in California would indicate while the total costs of providing electricity in all states involved are increased by less efficient distribution.[28]

Investment and Innovation Impacts

Open investment policies have been important to driving innovation, particularly in developing economies in areas such as clean manufacturing technologies. Such innovation occurs through technology transfer, economies of scale, market segmentation and competition. Further, many industries in which innovation is most badly needed to lower emissions are capital intensive with decades-long investment cycles. Producers making big bets on long-lived plants are understandably risk averse. If they lack confidence that a low-carbon trade regime will be in place throughout the expected lifetime of their investments, they may hedge or play it safe, limiting their commitments to clean manufacturing. The risk

[28] Petek G, "Assessing California's Climate Policies - Electricity Generation", California Legislative Analyst's Office, 2020

aversion of producers would have knock-on effects for technology developers, whether they are internal RD&D groups or suppliers.[29]

The EU CBAMs regime also has the potential to have a chilling impact on investment and innovation. This results from uncertainty around the coverage, functioning and durability of the regime over the many years that it will take to assess its impacts. The EU's approach to widening the coverage of the regime will only increase uncertainty. The way it measures and certifies embodied carbon, determines carbon prices and collects adjustment certificates will need to bed in before this uncertainty is reduced. Uncertainty will increase further if other jurisdictions retaliate to the EU's regime (as is discussed in the next section).

Geopolitical Considerations

The EU CBAM regime has been the subject of significant international criticism. Up to now, all have agreed that international cooperation is at the heart of climate action through the UNFCC. Many outside the EU complain that the CBAM has been adopted on a unilateral basis without consultation of affected parties. They point to the fact that firms from those jurisdictions which have adopted strategies on emission control which do not include an ETS are particularly disadvantaged. This is even though the ability of each member to decide their own approach to emissions control is enshrined in the UNFCC.

When the European Commission announced its proposals for the EU CBAM on 14 July 2021, APEC members responded as follows:

- Liu Youbin, a spokesperson for the Chinese Ministry of Ecology and Environment, criticized the CBAM as a unilateral measure to bring climate change issues into the trade realm and asserted that it would violate WTO principles;[30]
- Dmitry Peskov, a spokesperson for Russian President Vladimir Putin, said that the prospect of the CBAM was extremely unpleasant; [31]
- Korea's Vice Minister of Trade, Industry and Energy, Park Jin-kyu, warned that the CBAM "shouldn't be a trade barrier in disguise," and noted that the Korean government had "demanded that each country's effort in carbon neutrality and climate regulation should be sufficiently reflected" in the CBAM[32];
- Then Australian Minister for Energy and Emissions Reduction, Angus Taylor, argued that the European Union is forcing its internal standards and domestic carbon tax on the rest of the world, discriminating against countries like Australia.[33]

For many developing economies the issues run deep. This is because the CBAM may also be seen as unfair from an environmental perspective. The impact is most acutely felt in producer economies that have incurred the negative environmental costs to the benefit of consumers in the EU. The EU is the second largest importer of CO2 through trade, with European consumers and industry benefiting from the low prices of carbon-intensive goods

[29] P13 Koester S, Hart DM and Sly G, "Unworkable Solution: Carbon Border Adjustment Mechanisms and Global Climate Innovation", Information Technology and Innovation Foundation, September 2021
[30] "China Says EU's Planned Border Tax Violates Trade Principles", Reuters, 26 July 2021
[31] "EU's Plans for World's First Carbon Border Tax Provokes Trading Partners", Financial Times, 17 July 2021
[32] "EU CBAM as a Tariff in Disguise" Korea Joong-An Daily, 15 July 2021
[33] Angus Taylor "Keeping our Export Markets Free, Open and Tax Free", Press Statement, 4 August 2021

exported from developing economies. The production of these goods has historically caused local environmental damage, which has not and will not be compensated for.[34]

The EU CBAM, therefore gives rise to the question of climate justice. Many developing economies are not significant contributors to the emissions that have accumulated in the atmosphere over long periods of time. The CBAM is based on current emissions whereas historical responsibility is about long-term contributions. Certain developing economies have made reductions to their emissions, which, considering their situation, has required a proportionally larger effort than the EU. They say the CBAM disregards, at least to some extent, the principle of Common but Differentiated Responsibilities and Respective Capabilities, which is an important principle of the UNFCCC.[35]

However, the real danger to international trade and investment lies in the fact that some of the world's most powerful economies (many of which are members of APEC) may decide to retaliate to the imposition of the EU CBAM. Often retaliatory measures are placed on sensitive products (probably in this case unrelated to the CBAM) and are designed to maximise political pressure. While the primary losers in this case are likely to be EU exporters, such measures would doubtless entail further disruptions to Asia-Pacific trade and investment and to supply chains in the region. The possibility exists that the economic losses to the region that result from such retaliation (and any subsequent actions the EU itself takes) outweight the losses incurred from the CBAM itself.

The risk of such retaliatory measures and the fact that the CBAM will almost certainly be challenged in the WTO gives rise once again to the question of why the EU is introducing the regime at all. It points to the domestic difficulties the Commission faces gaining acceptance from European EITE industries that they will need to participate fully in the EU ETS. But the situation will entail a significant diplomatic management challenge for the Commission.

The EU is clearly aware of these challenges. For example, on 22 May 2023, EU Commission President, Ursula van der Leyen and Korean President, Yoon Suk Yeol, announced the agreement of a Green Partnership to strengthen cooperation on combatting climate change, including on such issues as climate adaptation, carbon pricing, methane emissions and climate finance. This new agreement has the potential to take a lot of the sting that the CBAM may have caused out of the Korea-EU relationship[36]. Furthermore, the EU could also soften the blow for many developing economies if it decided in futures to devote all CBAM revenues to promoting the adoption of clean technologies in developing economy industries.

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[34] Sanna Markkanen, Jorge Viñuales, Hector Pollitt, Hosuk Lee-Makiyama, Bence Kiss-Dobronyi, Arushi Vaishnav, Kevin Le Merle and Lauren Gomez Cullen, "On the Borderline: the EU CBAM and its Place in World Trade", University of Cambridge Institute of Sustainability working paper, October 2021

[35] P31 Pietras J, "Navigating the Carbon Border Adjustment Mechanism – the Dangers of Non-Compliance and Circumvention", Wilfred Martens Centre for European Studies, 2022

[36] "European Green Deal: EU and the Republic of Korea Launch Green Partnership to deepen cooperation on climate action, clean energy and environmental protection", press release from the European Commission, 22 May 2023

PART 5: ALTERNATIVES TO CBAMS

The objectives set out for CBAMs by the EU and others reflect legitimate concerns. Governments are right to be worried that as they implement domestic policies to reduce carbon emissions, the results will be undermined by carbon leakage to other jurisdictions alongside the reduced competitiveness of domestic industry. It is also right that governments should seek domestic industry participation in policies and processes to reduce emissions.

There are, however, some significant problems with the EU CBAM mechanism, particularly at the international level. As the mechanism involves de-facto exterritorial reach, other governments and industries also have legitimate concerns around not having been consulted or involved with the establishment of the mechanism. They can point to trade, supply chain and investment costs resulting from the implementation of the CBAM with little commensurate reduction of emissions occurring. The challenges are greater for developing economies (particularly smaller and poorer developing economies) with limited capacity to participate in the regime. As such, it is hardly surprising that some are likely to challenge the mechanism in the WTO. The greater danger however is that some larger economies may retaliate on a unilateral basis, leading to trade, supply chain and investment costs that are greater than those resulting from the CBAM itself.

The challenge for the international community (including APEC) is to develop shared alternatives to CBAMs that can meet objectives around emissions reduction while at the same time strengthening the global trading system and the operation of international and regional supply chains. This section will examine several options that seek to achieve this outcome.

Climate Clauses in RTAs/FTAs

A new generation of plurilateral or bilateral trade agreements could also help safeguard domestic climate ambition without recourse to CBAMs. RTAs have increasingly included environmental and climate change provisions with examples being the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the EU-Singapore, EU-Canada and Korea-Australia FTAs. At the same time, these agreements have only contained consultation, co-operation and "best endeavour" clauses with respect to climate policy actions. For example, the EU-Singapore Free Trade Agreement calls on the parties to take "proper account" of the need to reduce GHG emissions when designing subsidy systems.[37]

For future RTAs/FTAs, it is likely that stakeholders will call for more binding clauses on emissions reductions between member economies. Such agreements could include commitments to capacity building and technology transfer for developing economy participants. They could also gain the support and participation of domestic industry given that the alternatives, such as CBAMs, would be more difficult for them to comply with.

[37] P7 "Border Carbon Adjustments: What Shape in the Post-Covid Geopolitical and Economic Landscape" Background Paper for 40th OECD Roundtable on Sustainable Development, October, 2020

There is a need however to scope out how such binding provisions might operate given the different approaches to emissions reduction that can be observed across the globe.

In addition to commitments on emissions reductions, future RTAs/FTAs might include provisions which support the reduction of emissions. This could include commitments on disciplines on fossil fuel subsidies as well as open markets for environmental goods and services. Investment provisions will be of high importance given the link between investment and innovation and the transfer of technology, especially for developing economies.

Another model that could carry promise is that of specific trade and climate agreements. One early example is the Agreement for Climate Change, Trade and Sustainability (ACCTS), negotiated between a group of small, trade-dependent participants (Costa Rica, Fiji, Iceland, New Zealand and Norway). This agreement focuses on reducing fossil fuel subsidies and tariffs on environmental goods and on improving product certification. Another grouping aimed at promoting progress on emissions reduction is the 58 member Ministers for Trade on Climate Action. Formed on the edges of the June 2022 WTO Ministers Conference, this groups aims to "foster international cooperation and collective action to promote trade and trade policies that that pursue climate action across the WTO and relevant multilateral, plurilateral, regional and sectoral initiatives"[38]. Again, the challenge for these groupings will be to translate their objectives into tangible commitments.

Multilateral Processes Under WTO Supervision

Increasingly there is likely to be pressure for the WTO itself to become involved in the development of rules around trade and climate change. A start has been made with WTO Trade and Environment Structured Discussions (TESSD). Launched on 17 November 2020, the TESSD provides a forum for its 74 co-sponsoring members to consider where they can work together on issues that are at the nexus of trade, environment, and climate change, and eventually craft possible environmental sustainability "actions and deliverables." Unlike many other WTO groups, the TESSD has designed its discussions to incorporate inputs from invited external stakeholders, including civil society.

Following a Ministerial Declaration in December 2021, the TESSD formed four informal sub-groups, one of which is considering trade related climate measures. To date the group has not progressed much past a discussion of the various climate measures being implemented by members that could affect trade. This has included a full discussion of the EU CBAM mechanism. Other members have raised the need for trade-related climate measures to be designed in line with WTO rules, and in a way that addresses and mitigates the potential adverse impacts for developing members and micro-, small, and medium-sized enterprises. The group will continue communicating on new policies in the pipeline, while also identifying concrete deliverables they could aim to achieve. These deliverables could include

[38] Coalition of Trade Ministers on Climate Launch Statement

a possible list of the various trade-related climate measures that exist and that the group wants to focus on, along with setting up an exchange of best practices.[39]

There is a sense of a lack of urgency in this work, particularly in the sense that it has yet to focus on more tangible deliverables from the WTO system. This provides some cover for the likes of the EU to proceed with its CBAM on a unilateral basis. Indeed, some WTO members support the creation of a separate forum (possibly in addition to TESSD) to discuss ways to avoid carbon leakage through trade.[40]

Climate Clubs

Another idea is the "climate club" suggested by Nobel Laureate William Nordhaus. Under this proposal, a club of members with similar climate policies would undertake harmonized emissions reductions and set an international carbon price. Trade between them would be free of levies. Non-participants would be penalized with uniform percentage tariffs when their products enter club jurisdictions. This proposal requires setting an international carbon price and minimum carbon abatement standards.[41]

The EU has expressed itself open to the creation of a climate club on this basis as the number of jurisdictions with ETSs grows.[42] The idea has also been picked up by the G7, spearheaded by Germany. At the 2022 World Economic Forum Annual Meeting, Federal Chancellor of Germany Olaf Scholz announced that the G7 intends to make itself "the core of an international climate club which will implement the Paris climate goals at an accelerated pace." On June 28, 2022, the group released a two-page "G7 Statement on Climate Club" outlining the program, saying "We endorse the goals of an open and cooperative international climate club, and will work with partners towards establishing it by the end of 2022."

The G7 did in fact establish what it termed a "climate club" in December 2022. Overall, the club will be built on three pillars: climate mitigation by working towards a common understanding of how different measures can be made comparable,
industry decarbonisation, and boosting international ambition through partnerships and cooperation.[43] This falls well short of the type of climate club that was originally being discussed (and that Nordhaus would have envisioned) and reflects the reality that some G7 members such as the United States have no intention of establishing a nationwide carbon price let alone agree to an international scheme. It highlights the more general problem

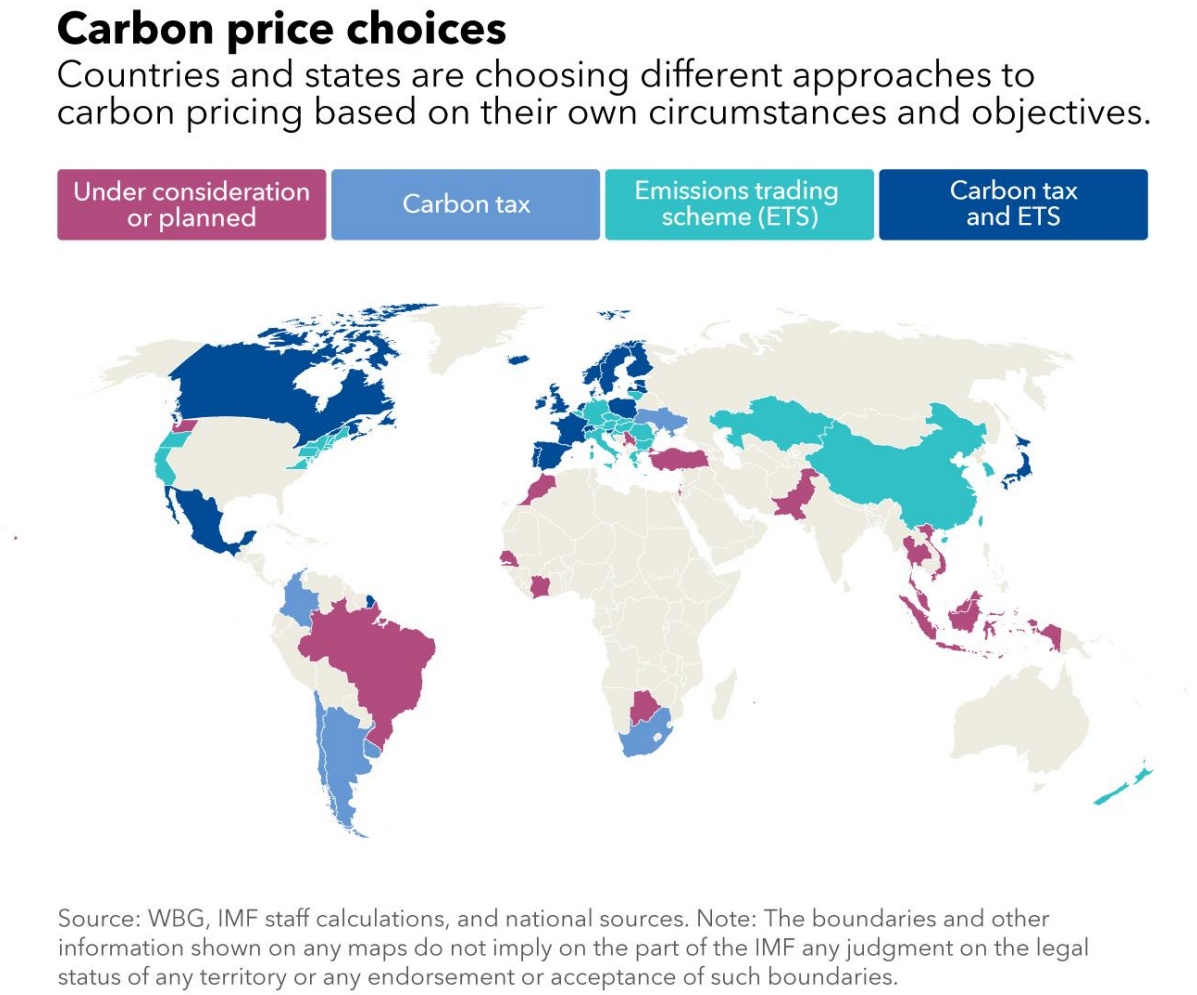
[39] Policy Brief "Trade and Sustainability Discussions at the WTO Approaching the Next Milestone", SDG Knowledge Hub, October 2022
[40] P60, Sanna Markkanen, Jorge Viñuales, Hector Pollitt, Hosuk Lee-Makiyama, Bence Kiss-Dobronyi, Arushi Vaishnav, Kevin Le Merle and Lauren Gomez Cullen, "On the Borderline: the EU CBAM and its Place in World Trade", University of Cambridge Institute of Sustainability working paper, October 2021

[41] Pp 1339–70 Nordhaus, William. "Climate Clubs: Overcoming Free-Riding in International Climate Policy." American Economic Review 105 (4), 2015

[42] P3 Briefing EU Legislation in Progress, "European Carbon Border Adjustment Mechanism – Implications for Climate and Competitiveness" European Parliament, March 2023.
[43] "Terms of Reference for the Climate Club" attached to G7 Leaders Statement, December 2022

that different economies have put in place different mechanisms for emissions reduction, as is illustrated in figure 4: carbon price choices.

Figure 4: Carbon Price Choices



At the same time, some analysts now argue that there is a better way to obtain the benefits of a climate club. One would be to operate a climate club based on mutual recognition of emissions reduction policies rather than through carbon prices alone. For example, Gary Huffbauer, Jeffrey Schott, Megan Hogan and Jisun Kim of the Peterson Institute state:

"A common carbon price is not needed to advance the outcomes committed in the Paris Agreement. After all, some two-thirds of GHGs result from essentially nontraded activities, such as road transport, electricity generation, and home and office heating. Countries can decisively advance their climate commitments by curbing emissions in these activities, while developing guidelines for carbon abatement policies deemed equivalent for traded sectors that incur compliance costs, whether tax or regulatory. Deemed equivalent policies would be exempted from carbon border measures. Such a pact would require detailed examination of the policies, laws, and regulations that each major emitter is implementing to meet its

climate commitments, which would be subject to international monitoring and enforcement. The Organization (OECD) might perform these tasks." [44]

In other words, negotiators would agree that a set of policies for each party, which if faithfully implemented and enforced, would be deemed equivalent. Doing so would remove the need for import restrictions between parties to the agreement. Exports from smaller developing economies could be spared carbon duties, giving them a special and differential treatment in setting the pace of their carbon abatement reforms. The G7 could work towards this outcome given the terms of reference for its climate club commit members to sharing "their assessment of risks for carbon leakage as well as their strategies to mitigate such risks and identify possible ways to cooperate in this regard."

Earlier Stefan Koester, David Hart and Grace Sly of the Information Technology and Innovation Foundation had proposed a similar model in the form of a "climate innovation club". The goals for this form of club would include sustaining international trade, encouraging the flow of innovative technologies across borders and driving increasingly ambitious climate targets. Entrance to club would be contingent on a high level of ambition, transparency, and enforceability of climate targets. The club would adopt action-oriented criteria that are flexible enough to accommodate the unique means by which different members address climate change. It would also establish a baseline standard for national climate policy, including vital strategies to spur innovation. Members would trade freely in EITE products between each while a common external tariff could be imposed on non-members. Criteria could be softened for smaller developing economies with little historic responsibility for climate change to join.[45]

Capacity Building to Reduce Emissions

There is much to be said for simply going to the source of the problem that CBAMs are intended to address – the problem of carbon leakage to jurisdictions with less stringent emissions control strategies. Many are developing economies which are often less effective at controlling emissions because they lack the capacity to do so. There is growing interest, therefore, in agreed capacity building exercises to enable developing economies move towards best practice in policies and programmes to reduce carbon emissions.

One example is the International Carbon Action Partnership (ICAP). Established in 2009, ICAP consists most of developed members, but it runs capacity building programmes for participants from developing economies. The EU is active in this organisation and runs a suite of courses that seek to provide participants from developing and emerging economies with knowledge to develop and implement emissions trading as a cost-effective policy instrument to reduce emissions. The text of the EU's CBAM also states that the EU should offer both financial and technical assistance to least developed economies to help with the implementation of the CBAM regulation, and to support their climate change mitigation and adaptation efforts.

[44] P19, Huffbauer GC, Kim J and Schott JJ, Petersen Institute Policy Brief "Can EU Carbon Border Measures Propel WTO Climate Talks?" November 2021

[45] Pp 14-16 Koester S, Hart DM and Sly G "Unworkable Solution: Carbon Border Adjustment Mechanism and Global Climate Innovation", Information Technology and Innovation Foundation, September 2021

PART 6: POSSIBLE RESPONSES FOR THE APEC REGION

All APEC economies would support the objectives set out for CBAMs in terms of seeking to limit carbon leakage and of persuading key domestic industries to participate in programmes aimed at lowering their emissions. Indeed, under the 2021 Aotearoa Plan of Action, APEC Leaders committed to promote "sustainable growth across sectors and the development of cost effective low and zero emissions technologies, sustainable finance and, if appropriate, carbon pricing mechanisms." Many APEC economies, however, have also expressed their misgivings on the type of CBAM that will be implemented by the EU, pointing to its potential costs to trade, investment and supply chains as well as to its likely limited impact on lowering emissions in third markets. It will not be surprising, therefore, if some APEC members join India if it goes ahead with its stated intention to test the legality of the EU CBAM under WTO rules.

At the same time, this report has also demonstrated that the costs imposed by CBAMs on APEC economies need to be kept in perspective. Many APEC governments and firms have the means at their disposal to mitigate the costs of CBAMs so that their impact is significantly reduced. There are no APEC members that are exposed to nearly the same extent as (often small) resource exporters as Central Europe and Africa.

In these circumstances, there are at least two roles that APEC can play in response to the adoption of CBAMs by others. The first is to continue to work together to develop shared understandings on CBAMs in terms of their objectives, their costs, benefits and risks, and their impact on trade and investment in the Asia-Pacific region. In particular, members of APEC should support each other to ensure a continuing commitment to not undermine the global and regional trading system in response to the imposition of CBAMs in future years. This "prevention of backsliding" role is one that APEC has played on many occasions in the past, most recently during the pandemic when APEC members supported each other to main (and even improve) the openness and efficiency of supply chains for vaccines and medical equipment.

A second role for APEC is to build on the organisation's wider role as an incubator of ideas and for its members to work together to develop a range of alternatives to CBAMs which could meet the same objectives but without the associated costs. For example, APEC members could work together to:

- Develop model climate clauses for FTAs/RTAs which provide a mutually agreed approach to lowering the emissions associated with trade and investment. This work would appear to be particularly timely given that Chair's Statement for the 2023 APEC Ministers Responsible for Trade meeting underscored APEC's commitment to advance economic integration in the region including through the FTAAP agenda. Work on how such climate clauses might eventually fit into FTAAP, therefore, would appear to be appropriate. As well as climate clauses as such, model provisions could also include supportive provisions in such areas as environmental goods and services, fossil fuel subsidies, investment, innovation and technology transfer;

- Support multilateral processes through the WTO to develop global rules on trade and climate change. It would also be useful if APEC could lend a sense of greater urgency to these processes;
- Advance the concept of "climate clubs" so that these can be developed to be genuinely supportive of trade and investment as well as to lowering emissions involved with trade. The climate club model based on mutual recognition of the different approaches taken by members to lower emissions would appear to have the most potential in this respect;
- Developing capacity building programmes that will allow APEC members to achieve their emissions reductions commitments, particularly through the development of carbon pricing mechanisms, thereby mitigating the possible impacts of CBAMs. Programmes could also be developed to facilitate the adoption of new technologies for lowering emissions, particularly by developing members;
- Contribute to the development of global accounting standards for carbon. This would contribute significantly to advancing other work areas. What is really required are global platforms for such standards, and given ASEAN is already conducting work in this area, APEC, working together with ASEAN could look to advance these.

Much of the work proposed above would need to be carried out through the APEC Committee on Trade and Investment and its sub-fora given the centrality of trade, investment and supply chain issues to the analysis of CBAMs. However, the Economic Committee might also be involved given the CBAM essentially involves the creation of a domestic regulatory regime, a process which might benefit from consideration of the alternatives and the application of good regulatory practices. The Economic Committee could also advance the work on global standards for carbon accounting as part of its work on corporate law and governance. The Policy Partnership on Science, Technology and Innovation might also contribute given the importance of innovation and technology transfer issues to this work.

RECOMMENDATIONS

ABAC may wish to transmit the contents of this report to APEC Ministers for their consideration. In doing so, ABAC should recommend that APEC:

- continue to monitor the development of CBAMs as well as their effectiveness of achieving the objectives of lowering carbon emissions and preventing carbon leakage;
- consider the implications of any WTO processes that test the consistency of CBAMs with WTO rules;
- analyse the costs of CBAMs to trade and investment and the operation of supply chains in the Asia-Pacific region;
- support the ability of APEC economies and businesses to address the impact of CBAMs in a manner that avoids further costs on trade and investment in the Asia-Pacific region;
- develop work programmes on alternatives to CBAMs which achieve the same objectives but without the costs involved. This could include work on the provisions of model chapters in RTAs/FTAs, discussions on international rules under the WTO, analysis of the various forms of climate clubs, approaches to capacity building in developing member economies and development of global standards for carbon accounting;
- instruct all relevant fora and sub-fora to engage in this work as appropriate.