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Carbon Border Adjustment Mechanisms and Implications for South Africa

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About this working paper

This working paper examines the European Union's (EU's) Carbon Border Adjustment Mechanism (CBAM) proposal, the implications for South Africa, and possible response options.

This paper was written in September 2022, and in December 2022, the trilogue negotiations involving representatives from the European Council, European Parliament and European Commission concluded with a political agreement on key design issues. We included the original text to illustrate the different features that can shape the design of a CBAM proposal and their implications for South Africa.

This working paper was written by John Ward (Genesis Analytics). The paper benefited from feedback from the Presidential Climate Commission's (PCC's) Climate Finance and Innovation Working Group and the PCC's Net-Zero Working Group.

The PCC working papers contain preliminary research, analysis, findings and recommendations. They are circulated to stimulate timely discussion and critical feedback and to influence the ongoing debate on emerging issues. Working papers may eventually be published in another form and their content may be revised.

About the Presidential Climate Commission

The PCC is a multi-stakeholder body established by the President of South Africa to advise on the country's climate change response and pathways to a low-carbon climate-resilient economy and society. The PCC facilitates dialogue between social partners on these issues, defining the type of society we want to achieve and detailed pathways for how to get there.

Introduction

Carbon border adjustment mechanisms (CBAMs), or border carbon adjustments (BCAs), are mechanisms that aim to increase the consistency in the application of carbon pricing between goods produced in different jurisdictions but traded between those jurisdictions.

Most commonly, they involve a jurisdiction that applies a carbon price to the production of emissions-intensive goods, such as through an emissions trading system (ETS) or carbon tax, seeking to apply an equivalent carbon price to imports of those goods from overseas jurisdictions. Practically, this could mean that South African exports of carbon-intensive goods would face an extra carbon cost liability in some jurisdictions.

Jurisdictions considering introducing CBAMs normally have up to three different objectives:

- **Reducing the risk of declining industrial competitiveness and/or carbon leakage.** Policymakers in the jurisdiction with a (higher) carbon price may be concerned that if some producers within their jurisdiction face carbon prices, but international competitors do not face an equivalent price, their international competitors may benefit from an unfair competitive advantage. This could be concerning both because (1) it could harm

industrial competitiveness and reduce economic activity and employment, and (2) it reduces the global effectiveness of the carbon pricing measure, as activity and emissions “leak” overseas. CBAMs may be considered as an alternative measure for dealing with these concerns rather than providing rebates to these producers or, under an emissions trading system, freely allocating some or all of the allowances these producers would need.

- **Increasing global climate action.** Policymakers may also expect countries subject to the CBAM measure to introduce/increase their carbon price to reduce/eliminate the liability their producers would face. In addition, producers within these countries may undertake abatement activity to reduce the cost imposition the CBAM poses. The CBAM measure can therefore be framed as part of global efforts to reduce emissions and meet the mitigation goal of the Paris Agreement to “hold the increase in the global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C.”
- **Raising revenue.** CBAMs are typically implemented by placing an additional charge/tax on products at the point of entry. This provides additional revenues to the authority implementing the CBAM measure, which can be allocated towards public spending priorities, including, potentially, further climate action. However, this is typically a second-order objective when considering CBAMs.

The EU plans to introduce a large-scale CBAM during the 2020s. Up until now, there have been few operative examples of CBAMs. One example is provided by California which imposes a measure for electricity generated outside the state boundaries but imported into California. However, until now, CBAMs have not been considered for a wide range of different products and/or in relation to trade

across international borders. This will change with the introduction of the EU’s CBAM.

This change could have significant impacts on South African producers. Between 2017 and 2021, the EU imported, on average, \$1.4bn per year of products from South Africa that could attract

a liability under the EU’s proposals, including in sectors that account for a significant amount of employment in the country. For example, 28,000 people work in the South African steel industry while the EU imported more than \$2bn of iron and steel products each year from South Africa prior to the Covid-19 pandemic.¹ Understanding the nature and potential scale of these impacts is a critical first step in helping to understand how the country may wish to respond, especially in the context of the ongoing partnership with the EU (and other partners) within the Just Energy Transition Partnership (JETP).

This briefing note focuses on EU CBAM proposals and some of the strategic implications for SA. It consists of three main sections:

- Section 2 explains the (different versions) of the EU proposals, including what has been determined and what is subject to ongoing political negotiations.
- Section 3 provides a summary of the previously conducted analysis exploring the economic effects on SA/Sub-Saharan Africa, as well as providing an indicative assessment of the relative exposure of different South African sectors.
- Section 4 provides a brief discussion of how South African policymakers may wish to respond.

This note focuses solely on the potential impacts of the EU’s CBAM proposal and the potential impacts and possible responses by SA. Other channels through which the EU’s decarbonisation programme might impact the South African economy are not included in the note.

¹ South African Iron and Steel Institute. (2022). [A healthy economy needs a healthy steel industry](#)

1. THE EU CBAM PROPOSAL

Authors prefacing note: This working paper was written in September 2022. In December 2022, the trilogue negotiations involving representatives from the European Council, European Parliament and European Commission concluded with political agreement on key design issues. We include the original text to illustrate to the reader the different design features that can shape the design of a CBAM proposal and their implications for South Africa. For the latest status, please read Annex 1.

1.1 Description of the alternative proposals under discussion

There are currently three separate proposals for a CBAM that have been developed by different parts of the EU policymaking architecture:

- A proposal put forward by the European Commission (EC), which is effectively the executive body of the EU, in July 2021.²
- A version that proposed amendments to the EC's plans, developed by the European Parliament announced in June 2022.³
- A version, also in the form of amendments to the EC's proposal, put forward by the European Council, representing the Heads of State of the national governments of the EU, and also published in June 2022.⁴

The so-called process of "trilogue negotiations" has begun to form a common implementation model from across these different proposals. This process commenced in the summer of 2022 and is intended to be concluded by November 2022, allowing for the implementation of some aspects of the final proposal from 2023.⁵ However, some commentators are sceptical as to whether this will be achieved, especially as the French, who have been the key driving force behind the EU's proposals, no longer hold the Presidency of the European

Council.⁶ Nonetheless, the current official position envisages the negotiations concluding before the end of 2022.

The three proposals have many similarities and differences, some of which could materially affect to what extent and which South African producers are affected. The subsections below explore the similarities and differences across the proposals using a series of questions:

- How would the CBAM work?
- Which trade flows would be covered?
- What are the key dates for implementation and what are the implications for existing carbon leakage protection methods provided to European producers?
- What sectors/products will be covered?
- What will be the geographic coverage of the mechanism?
- What emissions will be covered by the mechanism?
- How will the proposals determine the emissions intensity of products subject to the mechanism?

How would the CBAM work?

All three proposals envisage EU importers needing to purchase "CBAM certificates" according to the determined emissions intensity of the product. Importers of covered goods will, either individually or through a representative, become registered so that they can buy CBAM certificates. By 31 May each year, registered importers will need to detail the imports they have made, and the emissions associated with those imports, and surrender an equivalent number of CBAM certificates. The price of CBAM certificates will be set to match the prevailing price for allowances in the EU ETS

2 European Commission. (2021). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a carbon border adjustment mechanism, COM/2021/564 final

3 European Parliament. (2022). [Amendments adopted by the European Parliament on 22 June 2022 on the proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism](#)

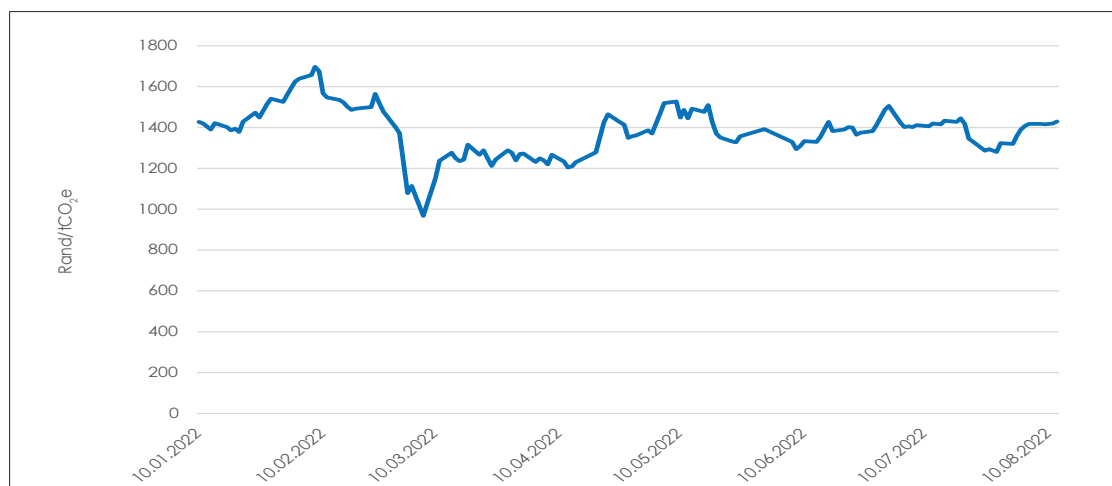
4 Conseil de l'Union Européenne. (2022). [Proposition de directive du Parlement Européen et du Conseil modifiant la directive 2003/87/CE établissant un système d'échange de quotas d'émission de gaz à effet de serre dans l'Union, la décision \(UE\) 2015/1814 concernant la création et le fonctionnement d'une réserve de stabilité du marché pour le système d'échange de quotas d'émission de gaz à effet de serre de l'Union et le règlement \(UE\) 2015/757](#)

5 More details about the trilogue process are available from European Parliament. (undated). [Interinstitutional negotiations: Interinstitutional negotiations for the adoption of EU legislation](#)

6 Kurmayer, N. (2022). [Germany's Scholz rallies G7 countries behind 'climate club' idea](#), Euractiv

(specifically the average auction price in the preceding week), although a transition phase will apply in the early years of the scheme's operation (see section 2.1.3 below). As Figure 1 demonstrates, full implementation of this pricing model would have implied a CBAM purchase price per tCO₂e of between R1,200 and R1,500 for much of the year to date (between €75-€90/tCO₂e).

Figure 1. 2022 EUA auction prices converted to rand



Source: Auction price data from [European Energy Exchange](#) and exchange rate data from [Investing.com](#). Conversion to rand based on spot exchange rate on each day for which there was an auction

All three proposals allow for a reduction in the number of CBAM allowances that need to be surrendered when a carbon price applies in the country of origin (as is the case for South Africa). This is expected to be a pro rata reduction according to the proportion of the EU ETS price that is covered by the domestic carbon price. In the case of SA, at current carbon prices, this would imply a reduction in the liability of South African producers of about 10% if the gross rate of the carbon tax is used (R144/tCO₂e), or possibly less if the European authorities seek to account for the various allowances currently included in the South African carbon price design. This reduction could either be claimed, with supporting evidence provided, on a case-by-case basis, or the EU and third countries could enter into agreements that would streamline the process of applying this reduction. This is in addition to the reduction in prices that will be applied during the early years of the scheme's operation, as described further below.

Coverage of trade flows

All three proposals only focus on imports into the EU. This reflects the greater certainty that a proposal that (only) focuses on ensuring that imports face similar costs with respect to climate and environmental provisions will be found compatible

with relevant World Trade Organization (WTO) provisions (see section 2.2).

This raises the question as to the treatment of European producers that produce for export to countries with lower/no carbon prices such as SA. At present, the risk that the EU ETS causes European producers to be at a competitive disadvantage in their export markets (such as SA) is significantly mitigated by providing free allowances to cover a significant proportion of their total emissions liability. However, the proposed introduction of the CBAM envisages that these free allowances will be steadily withdrawn (see section 2.1.3 below). This has led many European producers to express concern that their exports may become progressively less competitive, and correspondingly, that all other producers selling in those markets, including domestic producers, will become more competitive.

A number of responses to this issue could or have been suggested by European policymakers:

- In principle, one option would be to remove the requirement for European producers to pay the carbon price (surrender EU ETS allowances) with respect to products destined for export markets. However, none of the proposals by European policymakers puts forward this option. This is most likely because of the concern that it would

be considered an export subsidy, which would be incompatible with WTO regulations.

- The EC proposal makes no provision in relation to this issue.
- The European Parliament proposal envisages that European producers should initially receive free allowances with respect to production for export markets to countries without (or with lower) carbon pricing. However, it also calls for the EC to present a report to the Parliament by the end of 2025 on the impacts of the CBAM on European production to export markets and to potentially accompany this with a legislative proposal with an alternative solution. It suggests that this solution might be calibrated to give the most support for the 10% most carbon-efficient producers within the EU.
- The European Council proposal does not provide a specific recommendation but calls for a review of the issue in 2026 and every subsequent two years.

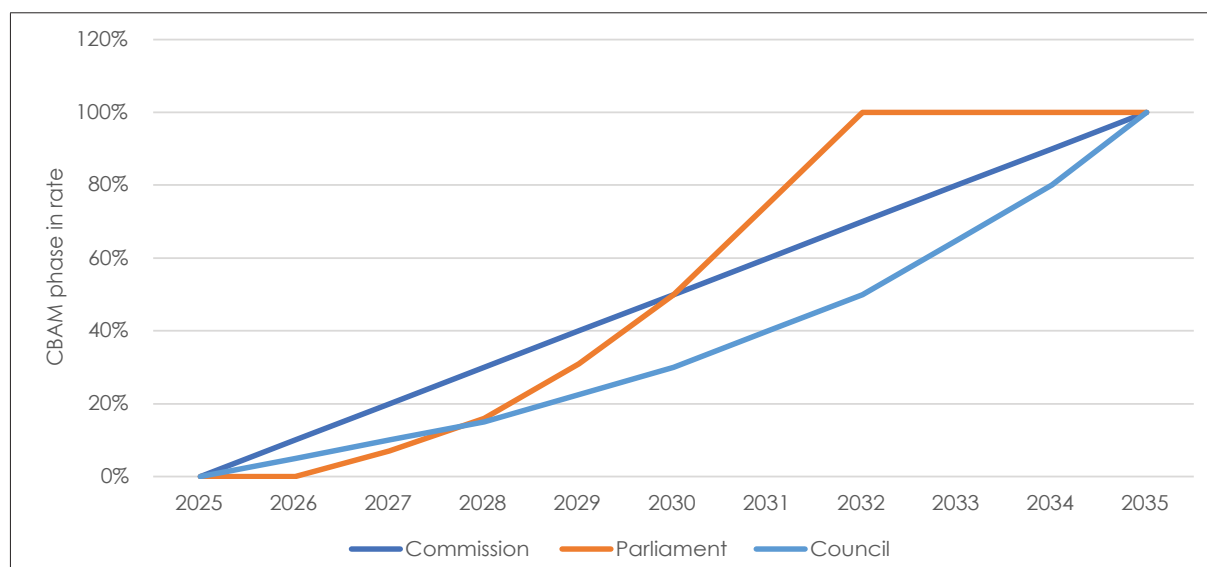
The proposals with the least attention to this issue of EU exports – notably the EC and European Council proposals – would provide the greatest benefit to South African producers. These proposals would leave the largest cost burden for European producers both with respect to their production for consumption in the South African market and other non-EU markets where they compete with South African producers.

Date of implementation

All the proposals envisage that the CBAM should commence as a transitional phase from January 2023. Under this transitional phase, there will be no financial liabilities associated with the application of the CBAM. Rather, the focus will be on ensuring that the mechanism can work effectively and that the necessary information can be collected. During this transitional phase, there will be a requirement to report on a quarterly basis the actual embedded emissions in goods imported, detailing direct and indirect emissions as well as any carbon price paid abroad.

The different proposals envisage a different date for the starting point for when importers will begin to phase in financial liability and the rate at which the financial liability will increase. The EC and Council’s proposals envisage that this will commence from January 2026. By contrast, the Parliament’s proposal envisages that the CBAM will only require payments to be made from 2027. In addition, the requirement to make payments will be phased in, at the same rate as the EU installations see their free allowance allocation decline. Figure 2 shows the different phase-in paths of the three proposals. It shows that, although the Parliament’s proposal involves a one-year delay compared to the other proposals, the subsequent phase-in is more rapid. The EC’s proposal involves a linear phase-in rate. The Council’s proposal sees the slowest phase-in rate, which would be the most advantageous to South African producers.

Figure 2. The three proposals vary in the speed at which the CBAM liability phases in



Sectoral scope

Both the EC and the Council propose that the CBAM mechanism covers the same sectors. These are cement, fertilisers, iron and steel, aluminium, and electricity. Both proposals also suggest that an assessment is undertaken in 2025 to consider which further sectors should be included.

The Parliament proposal has a more ambitious sectoral scope. In addition to the sectors identified by the EC and Council, it also envisages that the CBAM cover the chemicals (including hydrogen) and polymers sectors.⁷ Section 3.2 considers the materiality of this proposed expansion in scope to SA. The Parliament's proposal further indicates that all sectors currently covered by the EU ETS should be included in the CBAM by 2030.

The CBAM will be implemented through the Combined Nomenclature (CN) statistical system. This is the system used for global trade analysis and determining trade tariffs. Table 2 in Annex 2 shows the specific products related to each of these sectors covered by the different proposals as well as the greenhouse gases (GHGs) that will be covered by the mechanism.

Geographic scope

All of the proposals foresee very few geographic exemptions. In all three cases, exemptions are restricted to those countries that have an ETS linked to the EU ETS and where that country does not offer any rebate on the associated costs that are not also available to EU countries. At present, this is specified as covering Iceland, Liechtenstein, Norway and Switzerland. No other exemptions are foreseen in the proposals. However, the European Parliament proposes that an amount at least equal to the revenues earned through the sale of CBAM certificates should be provided *"to support climate mitigation and adaptation in the least developed countries, including their efforts towards the de-carbonisation and transformation of their manufacturing industries."* However, this mechanism would not benefit SA, as it is not a Least Developed Country (LDC).

Emissions scope

Both the EC and European Council proposals suggest that the CBAM liability should focus only on the direct emissions associated with the production of the products within scope. The EC proposal allows for the possibility that indirect emissions (those emissions associated with electricity, heating and cooling consumed by facilities but generated elsewhere) could be included at a later date, but only pending further review by the EC.⁸

By contrast, the European Parliament proposal envisages that indirect emissions be included automatically once the directive enters into force. It considers that the automatic inclusion of indirect emissions within the CBAM is necessary for compatibility with the WTO. Recital 17 of the Parliament's proposal states that: *"The CBAM should apply to direct emissions of those GHG from the production of goods up to the time of import into the customs territory of the Union, as well to indirect emissions, mirroring the scope of the EU ETS."* Coherence between the CBAM and the EU ETS is essential to respect the principles of the WTO.

The inclusion of indirect emissions within the mechanism would likely be particularly disadvantageous to South African producers. There is a particularly large difference in the emissions intensity of EU electricity generation, and that of many other countries that export relevant products into the EU, compared to that in South Africa which would result in a large cost differential to the detriment of South African producers. For example, the European Environment Agency reports that the average EU GHG emissions intensity of electricity generation in 2020 was about 200gCO₂e/kWh⁹ compared to about 720gCO₂e/kWh in South Africa in the same year.¹⁰

7 These sectors were excluded from the EC proposal on account of the difficulty in calculating the emissions associated with their production.

8 The possible future inclusion of indirect emissions explains why the EC's proposals require the collection and submission of information related to indirect emissions.

9 European Environment Agency. (2022).

[Greenhouse gas emission intensity of electricity generation in Europe](#)

10 Ember. (2022). [South Africa](#).

Determination of emissions of specific trade flows

All three proposals envisage a similar approach to assessing the emissions intensity of imports into the EU. The emissions intensity will consist of both direct emissions associated with the product being traded as well as, where relevant, embedded emissions, i.e., the emissions associated with the production of materials that are used as an input in the production process. The inclusion of embedded emissions will be particularly important in relation to a number of the iron and steel (and aluminium) included within the CBAM. For example, in the production of iron and steel pipe fittings, the direct emissions associated with production may not be very high, but the embedded emissions associated with the production of the iron and steel that is used to produce the pipe fittings will be much higher.¹¹

There will be three ways in which the emissions intensity of a product can be calculated:

- Actual data can be used.
- In the absence of actual data, default values can be used for each product included in the CBAM, set at the average emissions intensity of each exporting country.

- In cases where reliable data for the exporting country cannot be applied for a type of goods, the default values shall be based on the average emission intensity of the 10% worst-performing EU installations for that type of goods.

Further regulations will be issued by the EC setting out the detailed approach needed for these calculations. Where actual data is used for assessing emissions intensity, the data will be subject to a process of verification. Importers will have the legal responsibility for collecting and declaring the data needed to comply with the CBAM.

Summary

Table 1 below summarises the key features of the three proposals and, where relevant, the relative attractiveness that different design approaches may have from the perspective of supporting South African production.

¹¹ As per section 2.1.6, under the Parliament's proposal, the indirect emissions associated with production, as well as the indirect embedded emissions would also be included.

Table 1. Summary of CBAM design options and implications for South African producers

	European Commission proposal	European Parliament proposal	European Council proposal	Implications for South African producers
How would the CBAM work?	Importers need to purchase “CBAM certificates” according to the determined emissions intensity of the product. The price of CBAM certificates is to be determined by reference to EU ETS prices (weekly average) with a scope for a reduction in liability for countries with domestic carbon pricing. A gradual ramp-up of prices over time.			N/A
Which trade flows would be covered?	Imports into the EU only. No proposal to address the concerns of European producers that their international exports may become less competitive as free allowances are withdrawn.	Imports into EU are covered. Exports from EU could continue to receive free allowances, although Commission is required to undertake a review.	Imports into the EU are covered. Requires a review regarding EU exports in 2026 and every two years.	EC and Council proposals offer limited support to EU producers for export markets and provide the greatest benefit to South African exporters.
Date of implementation	2023-2025: transition period with no financial liabilities. 2026-2035: CBAM phasing in at 10% per year.	2023-2026: transition period with no financial liabilities. 2027-2032: phase in of CBAM.	2023-2025: transition period with no financial liabilities. 2026-2035: CBAM phasing in but at a slower rate than in EC proposal	Slow phase-in rate of Council proposal would provide the greatest benefit to South African exporters. Parliament proposal would see the most immediate impacts on South Africa producers.
Sectoral scope	Cement, fertilisers, iron and steel; aluminium and electricity	EC proposal + chemicals, polymers	Same as EC.	Wider sectoral scope of Parliament proposal will affect a greater value of South African exports.
Geographic scope	Exemption only for countries with carbon market linked to EU ETS offering no additional rebates: Iceland, Liechtenstein, Norway and Switzerland.	Same as EC but revenues from CBAM certificate sales are to be used for international climate finance in LDCs.	Same as EC.	N/A
Emissions scope	Direct emissions only; indirect emissions to be considered at a later date.	Direct and indirect emissions from commencement.	Same as EC.	The Parliament’s proposal to also include indirect emissions could be particularly disadvantageous to South African producers.
Determination of emissions of specific trade flows	Emissions calculation to include both production and embedded emissions. Either actual data or country averages or worst performing 10% of European producers. Further details on methodologies to be released.			N/A

1.2 Reflections on WTO compatibility of (different) EU proposals

This section provides an overview of the issues of WTO law that are likely to arise in relation to the CBAM proposal. However, a more detailed treatment must await the final formulation of the CBAM that passes into EU law.

The threshold question that arises is one of the characterisations of the charge. There are two main options:

- CBAM, in its various proposed formulations, could be considered a species of ordinary customs duty or “other duties or charges” of the kind contemplated in Article II of GATT 1994. These can be referred to as Article II duties.
- Alternatively, CBAM may be considered as a measure of internal taxation and regulation, which are the subject of Article III of GATT 1994. The Ad note to Article III allows that an internal charge that is collected or enforced in the case of an imported product at the time or point of importation is nevertheless to be regarded as an internal tax or internal charge.

Whether CBAM is an Article II duty or an internal charge regulated under Article III is of some consequence. If the EU’s CBAM is in an Article II duty and is in excess of the EU’s bound commitments, then CBAM will be in violation of Article II and Article XI of GATT 1994. If, however, CBAM is an internal charge then it would be regulated under Article III and violation depends upon whether a case can be made that the CBAM is a discriminatory measure because it is a measure to which imported products are made subject in excess of internal charges applied, directly or indirectly, to like domestic products. Put simply, a violation under Article III would require showing that CBAM is a regulatory adjustment the burden of which, applied to imported products, is in excess of the burden imposed on like domestic products.

CBAM is most likely to be understood as a process and production measure – a measure that seeks to regulate how a product is produced – rather than as a standard applicable to the final product. It is an unresolved question of WTO law as to whether measures of this kind are best understood as an

internal measure (regulated under Article III) or an Article II duty. If CBAM is an Article II duty, the EU violates Article II under the strict standard of what is contained in its bound commitments. If Article III applies, then a violation requires a showing of discrimination. And that, in turn, requires a detailed comparison of the burden imposed on products imported into the EU and made subject to CBAM and like products that are subjected to EU measures taken in respect of products produced domestically, i.e., in the EU.

Since the object of CBAM is regulatory equivalence, the EU will take steps to fashion CBAM, as far as possible, to secure an equal burden upon importers and domestic producers. But there are a number of aspects of CBAM that may make this difficult to achieve. These include the use of free allowances within the EU ETS, the type of recognition of the measures taken in the country of origin to reduce carbon intensity, the use of exemptions, a comparison of the EU ETS and CBAM, and whether the products are like products.

If a violation was proven either under Article II or Article III, the analysis would move to the justifications that are recognised under Article XX of GATT 1994. The introduction of Article XX provides conditions that must be met before a member may take advantage of the general exceptions. Of importance is whether CBAM is a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade. Here again, the features of CBAM and ETS will engage careful scrutiny. Wider questions may also be engaged as to whether CBAM is a coercive mechanism to compel countries that export products to the EU to adopt the same policies that the EU has decided upon to meet its carbon reduction commitments. And if that were the case, is that unjustifiable discrimination under the introduction of Article XX? And is the very concept of unjustifiable discrimination a concept that must be understood within the broader framework of international law, and, in particular, international environmental law which includes the principles of sovereignty, cooperation and common but differentiated responsibilities?

The analysis would then move to the general exceptions of which public morals, human life and health, and the conservation of exhaustible natural resources are the most plausible candidates for

consideration. The first two of these exceptions are judged under the standard of what is necessary.

The question of CBAM's consistency with Article XX raises another unanswered question of WTO law.

Is there a territorial limit on the extent to which a member may invoke Article XX to protect measures that have an extraterritorial effect? The issue arose in *US-Shrimp* but the Appellate Body declined to answer it and has not since done so. This question, in turn, raises important and complex questions as to how WTO treaty commitments fit into the overall architecture of international environmental law, and the commitments of countries at the COP. Principles of the kind referenced above figure large in that architecture, but their reconciliation with WTO law has not been determined in the case law.

In sum, while the framework of WTO law is well understood, there is much of its content, when applied to the introduction of CBAM, that gives rise to uncertainty. And how WTO law is to be interpreted in light of the emergence of international environmental law provides an added dimension of uncertainty.

2. POSSIBLE ECONOMIC IMPLICATIONS FOR SA

2.1 Overall effects on trade

Impact on exports from (South) Africa to EU

This section explores how South African exports to the EU could be affected by the CBAM. The introduction of the CBAM will increase the costs of South African exports in European markets, reducing their competitiveness and hence the likely value of future exports. Arguably, the best easily available assessment of the possible scale of these impacts is the Impact Assessment¹² that accompanied the EC's proposals; the modelling embedded in this work aimed to reflect the specifics of the EC's proposals. Unfortunately, however, this modelling analysis considers Africa as an entire region rather than separately identifying individual countries. Therefore, this section combines the results of this analysis with those from a wider literature review.

In relation to the EU Impact Assessment, quantification of the impacts of the CBAM depends on the assumed counterfactual. Three options are included in the Impact Assessment:

- A 'reference' scenario where EU mitigation policy ambition remains as it was prior to the planned introduction of the CBAM proposal, namely a 40% reduction in GHGs below 1990 levels by 2030.
- A scenario in which mitigation policy ambition is raised from a 40% reduction to a 55% reduction (on 1990 levels by 2030), but with carbon leakage protection continuing to be provided primarily through free allowances rather than the CBAM. The desire to increase emission reduction ambition from 40% to 55% is one of the main motivations for proposing the CBAM. This is referred to as the MIX scenario.
- A further scenario in which mitigation ambition is raised from 40% to 55% and at the same time there is a removal of all free allowances, as currently foreseen in relevant EU directives, but without the CBAM being introduced. This is the "MIX with auctioning" scenario.

The Impact Assessment also considers a number of different options. The option closest to the EC’s final proposal is “Option 4”.

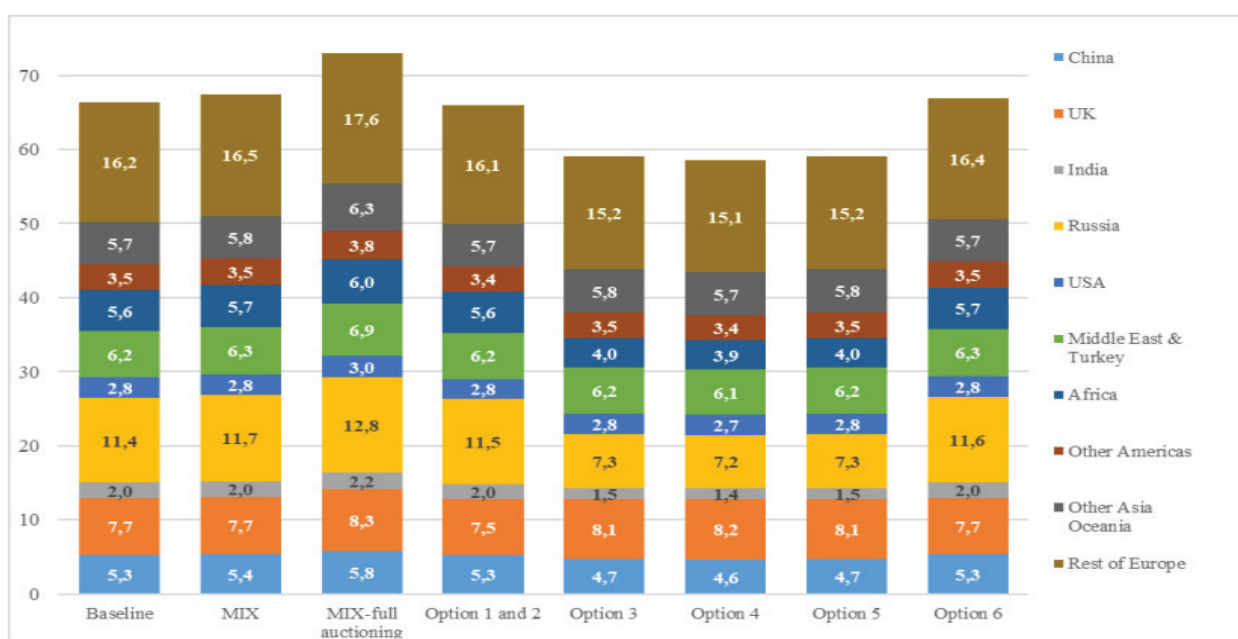
The Impact Assessment corroborates the expectation that Africa as a whole will see export declines in CBAM sectors, with the analysis suggesting declines of between 30% and 35%.

Figure 3 provides a comparison of these different scenarios in terms of the exports from third countries into the EU in 2030. Under Option 4, exports from Africa in CBAM sectors are expected to amount to €3.9bn in 2030. By comparison, without the CBAM proposal, the modelling suggests that exports from CBAM sectors in the same year might have been between €5.6bn (if the EU maintained its

earlier mitigation target of 40%) and €6.0bn (if the EU moved to a 55% reduction target and removed free allowances).

Moreover, these estimates may underestimate the scale of the impact on African exports. The modelling analysis suggests that the carbon price consistent with these different scenarios might be between €45–€47/tCO₂ and this feeds directly into the expected CBAM charge used in the modelling. However, as shown in Figure 1, current EU ETS prices are about €75–€90/tCO₂, up to twice as high as calculated in the impact assessment. If these EU ETS prices were to persist, the price of CBAM certificates would be twice as high as used in this modelling.

Figure 3. The EC’s impact assessment suggests that exports from Africa into the EU in CBAM sectors will fall significantly



Source: JRC-GEM-E3 model

That said, the EC’s impact assessment does not identify South Africa as being among the most affected by the CBAM. According to its analysis, the most exposed countries are likely to be Russia, Ukraine, Turkey, Albania, Egypt, Algeria and Morocco.

There are three further recent studies that provide country-specific results related to the potential impacts of the EU’s CBAM, including results for South Africa:

- Xiaobei, Fan and Jun (2022)¹³ provide country-specific results for a range of countries, including SA. Their analysis, based on an EU ETS/CBAM price of \$75/ton applied to direct emissions only, finds that South African exports to the EU could fall, in 2030 and relative to a baseline with no CBAM, by -8.7% for chemicals, by -16.0% for aluminium, by -30.5% for iron and steel, and by -44.3% for cement. This is estimated to lead to a total

12 European Commission. (2021). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a carbon border adjustment mechanism, COM/2021/564 final.

13 Xiaobei, H., Fan, Z. and Jun, M. (2022) The Global Impact of a Carbon Border Adjustment Mechanism: A Quantitative Assessment, The Task Force on Climate, Development and the IMF.

reduction in exports to the EU of 4.0% and a reduction in South African GDP of -0.02%.¹⁴ While these results are useful, it is not clear to what extent and how the authors account for the expected change in the ambition of the EU ETS over this period as per the EU's Impact Assessment, nor does it appear to consider how the CBAM might make the EU's exports into South Africa less competitive (see section 3.1.2). It should also be noted that the analysis has to approximate the effects on the aluminium and cement sectors by looking at the non-ferrous metals and non-metallic minerals sectors as a whole.

- Eicke et al. (2021)¹⁵ create a relative risk index to understand exposure and vulnerability to the introduction of the EU CBAM focused on energy-intensive trade-exposed sectors. Their index considers the export structure of countries, their emissions intensity, emissions reduction targets, and institutional capacities to monitor and report product-based emissions. It finds that South Africa is ranked in the top two quintiles of countries in the global South that stand to be most affected by the CBAM.
- Magacho et al. (2022)¹⁶ explore the proportion of total country output that might be affected by the EU's CBAM proposals (focusing on the sectoral definition of the EC's proposals), but also taking into account supply chain impacts. Their analysis suggests that, among countries in the global South, South Africa is approximately the 18th most affected country, with approximately 0.4% of its output exposed to the CBAM. Mozambique is the country with the highest exposure, at more than 6% of output, on account of the importance of its aluminium exports to the EU.

However, to date, there appears to have been no detailed, general-equilibrium analysis, providing country-specific results on how the CBAM proposals currently being developed by European policymakers might affect the economies of the global South, including SA. This is a significant omission given the potential negative impacts that might be expected.

Impact of imports from EU to (South) Africa

The CBAM could result in European exports into South Africa – and other markets where European producers compete with South African producers – becoming less competitive. As discussed above, the CBAM will not cover exports from the EU and, under the EC's proposals, European producers will progressively lose the protection that they have historically received through free allowance allocation.

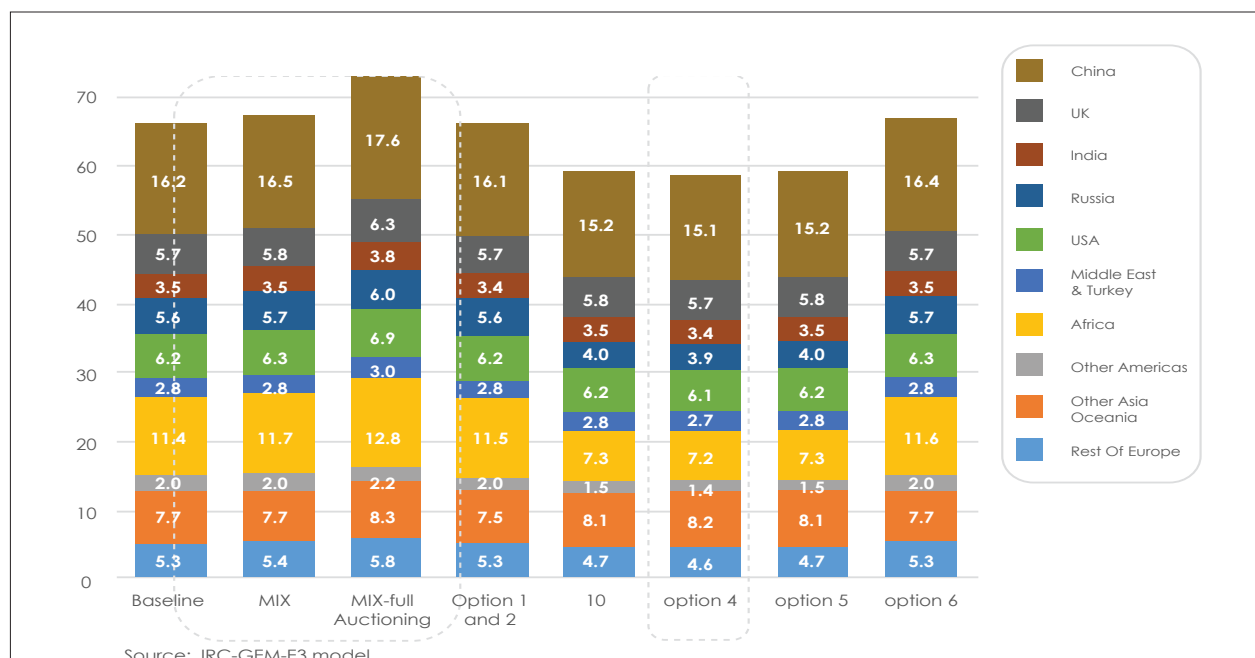
Figure 4 below demonstrates the declining competitiveness of EU producers identified in the EC's Impact Assessment. Comparing the baseline and MIX scenarios with the Option 4 scenario, the modelling suggests that total EU exports to third countries could fall from about €80bn in 2030 to about €75bn in 2030. Looking specifically at exports to Africa, these might fall from €8.3bn to €7.8bn. However, this €0.5bn fall is a smaller decline in EU exports into Africa than the €1.7bn–€1.8bn fall in African exports to the EU reported in Figure 3. Moreover, compared to a situation in which the EU moves to a 55% GHG reduction target with no free allowance provision (MIX full auctioning scenario) the introduction of the CBAM is expected to increase EU exports both globally (by about €2.1bn) and into Africa specifically (by about €0.2bn).

14 The authors also consider a further, extreme scenario in which the CBAM expands to all imported goods and services, and all indirect emissions from upstream value chains (Scope 3) are included in calculating the carbon content. In this case, they find that total South African exports to the EU could fall by -34.9% and South African GDP could fall by -0.326%, by 2030 relative to a baseline scenario without a CBAM.

15 Eicke, L., Weko, S., Apergi, M. and Marian, A. (2021). Pulling up the carbon ladder? Decarbonisation, dependence, and third-country risks from the European carbon border adjustment mechanism, *Energy Research and Social Science*, 80, October 2021, 102240, <https://doi.org/10.1016/j.erss.2021.102240>

16 Magacho, G., Espagne, E. and Godin, A. (2022). Impacts of CBAM on EU trade partners: consequences for developing countries, AFD Research Papers, Issue 238. Available at: <https://www.cairn-int.info/journal-afd-research-papers-2022-238.htm?WT.isrc=pdf>

Figure 4. The EC's impact assessment suggests that the CBAM will cause European producers of these products to become less competitive in global markets



2.2 Relative exposure of South African exporters

This subsection provides a preliminary examination of the sectoral impacts within South African sectors of the CBAM. To explore this, it uses two pieces of information:

- Data on the EU's imports of various products from South Africa that could be covered by the CBAM, focusing on 2019 as the last year for which data is available where trade flows were unaffected by the COVID-19 pandemic.
- An estimate of the extent to which the CBAM might be expected to increase the cost of supplying these goods to the European market. To approximate this, the analysis allocates the product CN codes that could be covered by the CBAM to the subsectors that produce those products. It then uses data previously calculated

by the EC that explored the extent to which the direct costs¹⁷ associated with the EU ETS might be expected to lead to cost increases for European producers in these subsectors. This is expressed as a [0-100] index, with 100 being the subsector previously identified by the EC as seeing the largest direct cost increase from the EU ETS (manufacture of lime and plaster) and 0 for the subsectors expected to see the lowest cost increase.^{18,19}

By simultaneously considering the importance of EU trade to different sectors and the extent to which South African producers may see cost increases (compared to European producers) the analysis provides a first assessment as to where the effects on the South African economy may be most pronounced.²⁰

The results of the analysis are presented in Figure 5 below. Electricity is excluded from the analysis as there is no reported trade in electricity between South Africa and the EU.

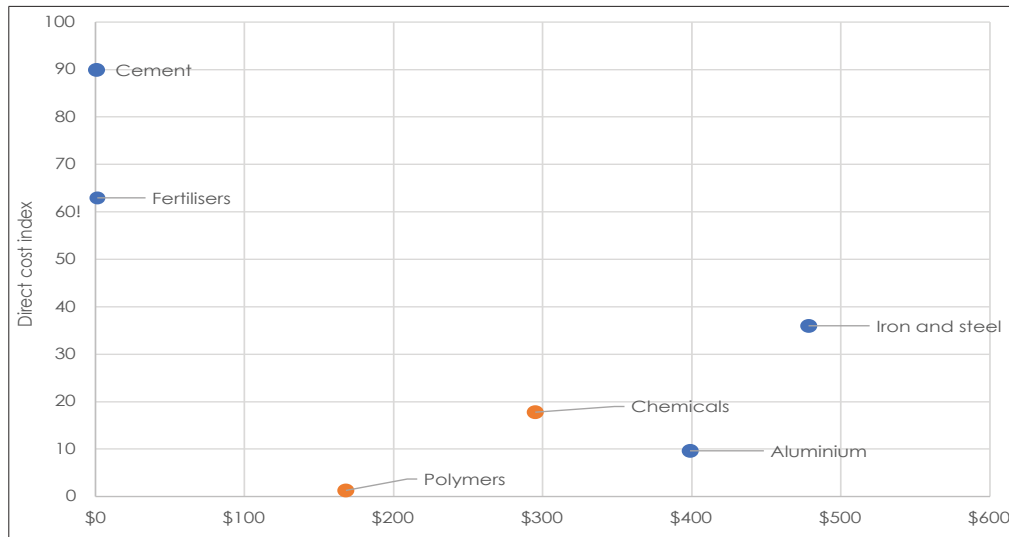
17 The analysis focuses on direct costs as both the EC and Council proposals suggest that the CBAM will focus on these emissions only. Data is available to undertake further analysis also looking at indirect costs.

18 This indexing is applied as the carbon price assumptions used in the previous EC analysis do not relate to the prices that will be associated with the CBAM. Indexing the values emphasises that the focus is on the relative GHG intensity of the different sectors and products.

19 For iron and steel, the analysis considers two measures of cost increase. The first identifies the subsector associated with the production of each product and allocates the cost increase identified by the EC for that subsector. However, for some iron and steel fabricated products, this ignores the embedded emissions associated with the production of these goods, which the EC treats as arising in a different subsector, the manufacture of basic iron and steel subsector. Therefore, the analysis is also considered an option whereby these fabricated products were given the same cost increase as the manufacture of basic iron and steel. Ultimately, when weighted by EU exports value, these alternatives did not yield significant differences (2 points on the cost index), because the vast majority of the South African iron and steel exports are of basic iron and steel. The figure uses the simple average of the two approaches. Similar issues did not arise in other parts of the analysis where all of the products were allocated to a common subsector.

20 Note that this is a different analysis to the sectoral changes in exports reported by Xiaobei, Fan and Jun (2022) discussed in section 3.1.1. The results in section 3.1.1 provide an assessment of the changes in South African exports to the EU (EU imports of South African products) within each sector; the analysis in section 3.2 takes account of the relative importance of South African exports (EU imports) of these products to the South African economy.

Figure 5. The impacts of the CBAM in South Africa are likely to be channelled primarily through the iron and steel sector



Note: Polymers and chemicals are given a different colour as these sectors are only included in the EU Parliament’s proposal

The analysis suggests that the iron and steel sector may be the sector whose vulnerability to the CBAM causes the greatest negative impact on the South African economy. The EU imports a higher value of iron and steel products from South Africa than any other sector covered by the CBAM, while it is also expected to see the third largest cost increase. While exports of cement and fertilisers could see larger cost increases, only a relatively small value of these products is imported into the EU from South Africa. The value of EU imports of polymers, chemicals and aluminium are all lower than that of iron and steel and the CBAM is expected to result in a smaller cost increase.

This analysis should only be considered as an indicative analysis with a more detailed analysis likely to be valuable. Future analysis could look more deeply into at least two areas.

- Due to data availability, this analysis uses the relative carbon intensity of production of sectors in the EU. This helps understand the relative significance of the CBAM to different sectors. However, a significant driver of the overall impact of the CBAM will be driven by South Africa’s emission intensity, and how this varies compared to European producers and producers in other countries exporting products into the EU. However, this data is not easily accessible.

- Backwards/forward linkages. The analysis does not consider wider linkages across the economy and how the CBAM might influence supply chains within South Africa and the way in which South African firms are integrated into global supply chains affected by the CBAM.

Ultimately, the most useful insights on the impacts of the CBAM on the South African economy, and the relative effect on different sectors, are likely to come from a global general equilibrium model exercise that incorporates the relative emissions intensity of production across the world. This could build on the analysis developed by Xiaobei, Fan and Jun (2022) but potentially extended to include an analysis of how EU exports of affected products might change, as well as expected changes in EU ETS policy ambition into the future.

3. POSSIBLE RESPONSES BY SOUTH AFRICA

It seems unlikely that European policymakers will provide a full-scale exemption to the CBAM for South African producers. European policymakers have placed a strong emphasis on applying the CBAM in a neutral manner across third countries, aside from those countries already covered by the EU ETS. This includes rejecting suggestions from some stakeholders that the CBAM should not apply to LDCs. The likelihood that European policymakers might provide an exemption for South Africa, as an upper-middle-income country, seems implausible. It also seems unlikely that any remedies resulting from a legal challenge through the WTO would result in a more liberal approach to exemptions, due to the risk of discrimination against those not benefiting from such exemptions.

Rather, there are two main options available to South African policymakers:

- To pursue political and/or legal routes to challenge the entire validity of the CBAM proposal. Indeed, the pursuit of a legal challenge, with or without other WTO members, would provide a means to seek political changes as the process of bringing a challenge requires consultation between the parties. As section 2 discusses, however, the outcome of a legal challenge is highly uncertain, especially as efforts have been taken to design the CBAM in a way that increases the probability that it is considered compatible with WTO rules. Historically, South Africa has used dispute settlement at the WTO to pursue its trade strategy – in contrast to, for example, Brazil and Mexico – which might reduce the attractiveness among South African decision makers to pursue a legal course at this stage.
- To pursue either legal and/or political routes to encourage European policymakers to select or alter the design of the CBAM in a way that assuages some of SA's concerns. Building on the design differences between the proposals identified in section 2, as well as other considerations, some of the main opportunities would include:

- Critically, to ensure that indirect emissions are excluded from the CBAM design, in line with the EC and European Council's proposals, but not those of the European Parliament.
- To adopt a slower phase-in of the CBAM, more in line with the EC and Council's proposals rather than those of the European Parliament.
- To restrict the sectoral scope of the design, and especially to ensure that the European Parliament's proposals to include chemicals remain out of the CBAM design (the inclusion/exclusion of polymers appears less critical to South Africa).
- To support the idea that the receipts from the CBAM are used to support international climate finance but that this should not just be restricted to LDCs, as suggested by the Parliament, but could also support, for example, the JETP.
- To encourage European policymakers to recognise that South Africa is taking ambitious climate action and that this is not only reflected in the explicit carbon tax (as already allowed for by the European proposals) but also through other regulatory measures that seek to achieve similar goals by different means. Analytically, this could involve assessing the "effective carbon price" associated with South Africa's regulatory measures, potentially building on methodologies already recognised by the OECD.²¹
- Seeking a more favourable assessment of the default emissions intensity of South African (and other) producers.

In relation to the first four of these issues, it should be stressed that decisions related to the initial design of the CBAM will be taken through the trilogue process which is expected to conclude by the end of 2022. As such, South Africa would need to expeditiously seek to influence these design considerations.

21 OECD. (2013). Effective Carbon Prices. Available at: <https://www.oecd.org/env/tools-evaluation/effective-carbon-prices-9789264196964-en.htm>

Regardless of which approach is taken, South Africa is likely to want to make use of the option provided by the CBAM proposals to allow for its carbon tax (and potentially other mitigation policy measures) to be automatically recognised when South African goods are imported into the EU. This will minimise the bureaucracy associated with gaining recognition for SA's existing policy measures.

A more detailed analysis of the likely impact of the CBAM on the South African economy would be valuable. As noted above, empirical evidence on the impact of the CBAM on third countries is relatively scarce, with only one study providing South Africa-specific results taking account of the expected design of the EU's CBAM. This finds that, by 2030, and relative to a baseline with no CBAM, South African total exports to the EU might fall by 4.0% and GDP could fall by -0.02%. These trade impacts are the largest of the BRICS countries, and the GDP impacts are second in this group of five countries and in line with those seen across Sub-Saharan Africa. However, as noted there are a few areas where this analysis could be extended to generate a more refined analysis. In addition, further "ranking" evidence suggests that South Africa is mid-ranking among countries affected by the CBAM, while the analysis in this note suggests that these effects are likely to be channelled primarily through the iron and steel sector. A more detailed and specific analysis would help:

- Provide additional evidence in support of either of the two strategies identified above.
- Allow South African policymakers to target any support it wishes to offer affected producers and workers.
- Understand the trade-offs associated with further raising mitigation policy ambition in order to reduce the CBAM liability.

The most rigorous form of this analysis would come from a global general equilibrium model exercise that incorporates the relative emissions intensity of production across the world.

ANNEX 1: FEBRUARY 2022 UPDATE

Further to the development of this report, a political agreement on the design of the EU's CBAM was announced in December 2022. Information was provided in two press releases – one related specifically to the CBAM²², with further information about the CBAM then provided in the context of the announcement regarding a political agreement regarding reform to the EU ETS²³. While these press releases provide an important update on how the CBAM will be designed, as of January 2023, a revised text of the CBAM proposal, providing detailed information, is not available.

Following the structure in section 2, the latest information on the CBAM proposal can be summarised as follows.

- The design of the CBAM scheme remains the same: those importing products from key sectors will be required to purchase CBAM certificates according to the estimated carbon intensity of those products, with the price of CBAM certificates linked to the contemporaneous price of EU ETS allowances.
- The CBAM will focus on imports into the EU. The press release related to the CBAM states that *'Further work is also required on measures to prevent carbon leakage on exports'* while the release on EU ETS reform states that: *'Before 2026 the Commission will review the impact of the CBAM, including on carbon leakage risks, and see whether additional measures are needed.'*
- The transitional phase of the CBAM will commence in October 2023. The requirement to purchase CBAM certificates will commence in 2026. This date for when financial liabilities commence is in line with the European Parliament's proposal and one year later than suggested by the Commission and Council. The requirement to pay 100% of the CBAM liability will be reached in 2034, later than suggested by the Parliament but one year earlier than in Commission's and Council's proposals.

22 Council of the European Union (2022) 'EU climate action: provisional agreement reached on Carbon Border Adjustment Mechanism' 13th December.

23 Council of the European Union (2022) 'Fit for 55': Council and Parliament reach provisional deal on EU emissions trading system and the Social Climate Fund' 18th December.

The precise speed at which the liability will apply has not been stated but it will take place at the same speed as free allowances are phased out for installations in relevant sectors covered by the EU ETS. The press release on EU ETS reform indicates that, considering the 2026-34 period as a whole, this will take place 'at a slower rate at the beginning and an accelerated rate at the end of this period.'

- The sectoral scope has been confirmed as covering iron and steel, cement, fertilisers, aluminium, electricity and hydrogen. This means that the Parliament's suggestion to include hydrogen has been confirmed, but that its proposal to include other chemicals and polymers has not been taken forward for the time being. The press release also

refers to the inclusion of 'some precursors and a limited number of downstream products' although precise details are not available.

- There is no content in either press release that suggests changes to the geographic scope of CBAM.
- Crucially, from South Africa's perspective, the press release related to the CBAM notes that: '**Indirect emissions** would also be included in the regulation in a well-circumscribed manner.' No further details on how this will be implemented or calculated are available at present.
- The press releases provide no further detail on how the emissions intensity of products covered by the CBAM will be calculated.

ANNEX 2

Specific CN codes covered by the differing CBAM proposals

Sector	Product code	Product description	GHG to be covered by CBAM
Cement	2523 10 00	Cement clinkers	CO ₂
	2523 21 00	White Portland cement, whether or not artificially coloured	CO ₂
	2523 29 00	Other Portland cement	CO ₂
	2523 90 00	Other hydraulic cements	CO ₂
Electricity	2716 00 00	Electrical energy	CO ₂
Fertilisers	2808 00 00	Nitric acid; sulphonitric acids	CO ₂ and N ₂ O
	2814	Ammonia, anhydrous or in aqueous form	CO ₂
	2834 21 00	Nitrates of potassium	CO ₂ and N ₂ O
	3102	Mineral or chemical fertilisers, nitrogenous	CO ₂ and N ₂ O
	3105 except 3105 60 00	Mineral or chemical fertilisers containing two or three of the nitrogen, phosphorus and potassium; other fertilisers; goods of this chapter in tablets or similar forms or in packages of a gross weight not exceeding 10kg Except mineral or chemical fertilisers containing phosphorous and potassium (i.e. excluding nitrogen)	CO ₂ and N ₂ O
Iron and steel	72 except 7202 and 7204	Iron and steel Except for ferro-alloys and ferrous waster and scrap	CO ₂
	7301	Sheet piling of iron and steel whether or not drilled punched or made from assembled elements	CO ₂
	7302	Railway or tramway track construction material of iron or steel	CO ₂
	7303 00	Tubes, pipes and hollow profiles of cast iron	CO ₂
	7304	Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel	CO ₂
	7305	Other tubes and pipes (e.g., welded, riveted or similarly closed), having circular cross-sections, the external diameter of which exceeds 406.4mm of iron or steel	CO ₂
	7306	Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel	CO ₂

Sector	Product code	Product description	GHG to be covered by CBAM
Iron and steel	7307	Tube or pipe fittings of iron and steel	CO ₂
	7308	Structures and parts of structures of iron and steel (for example bridges and bridge-sections, lockgates, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades, pillars and columns) excluding prefabricated buildings	CO ₂
	7309	Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 litres	CO ₂
	7310	Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 litres	CO ₂
	7311	Containers for compressed or liquefied gas, of iron or steel	CO ₂
Aluminium	7601	Unwrought aluminium	CO ₂ and perfluorocarbons
	7603	Aluminium powders and flakes	CO ₂ and perfluorocarbons
	7604	Aluminium bars, rods and profiles	CO ₂ and perfluorocarbons
	7605	Aluminium wire	CO ₂ and perfluorocarbons
	7606	Aluminium plates, sheets and strips, of a thickness exceeding 0.2mm	CO ₂ and perfluorocarbons
	7607	Aluminium foil of a thickness not exceeding 0.2mm	CO ₂ and perfluorocarbons
	7608	Aluminium tubes and pipes	CO ₂ and perfluorocarbons
	7609 00 00	Aluminium tube or pipe fittings	CO ₂ and perfluorocarbons
Chemicals	29	Organic chemicals	CO ₂
	2804 10 000	Hydrogen	CO ₂
	2814 10 000	Anhydrous Aluminium	CO ₂
	2814 20 20	Ammonia in aqueous solution	CO ₂
Polymers	39	Plastics and articles thereof	CO ₂ and N ₂ O

Note: Chemicals and polymers are only included in the Parliament proposal.



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