African Future Policies Hub

POLICY BRIEF

August 2026

Protecting the aluminium industry

Emissions monitoring and reporting

This paper was published by **African Future Policies Hub:**
iHUB Jahazi, Off James Gichuru Road, Lavington, Nairobi, Kenya
Email: info@africanfuturepolicieshub.org
Contact number: +27 (0) 79 524 0951
Website: www.africanfuturepolicieshub.org

Acknowledgments

The paper was authored by Seutame Maimele and reviewed by Maria Ogbugo, Shimukunku Manchishi and Kasonde Chituta.

It was edited by Ozayr Patel and designed by Sarah-Kate Meyer.

Overview

The EU Carbon Border Adjustment Mechanism (CBAM) has exposed a critical gap in global greenhouse gas (GHG) accounting: the ability to measure emissions at product-level. As carbon border measures become more widespread, exporters are increasingly required to demonstrate the emissions embedded in their products to maintain access to key markets. This is particularly significant for South Africa's aluminium industry, which exports a substantial share of its production to the European Union.

South Africa's aluminium sector is relatively advanced in terms of monitoring, reporting and verification (MRV) readiness compared to other emissions-intensive industries. Major producers such as Hulamin and South32's Hillside smelter have already invested in emissions accounting systems and are reporting emissions data. However, significant challenges remain, particularly the limited availability of local verification capacity, the high carbon intensity of South Africa's electricity supply, and uncertainty surrounding the future treatment of indirect emissions under CBAM.

This brief finds that South African aluminium producers remain relatively competitive when only direct emissions are considered. However, this advantage diminishes significantly once electricity-related emissions are included. As a result, improving access to renewable energy and strengthening verification capacity will be critical to safeguarding the sector's long-term competitiveness.

Contents

1 Introduction

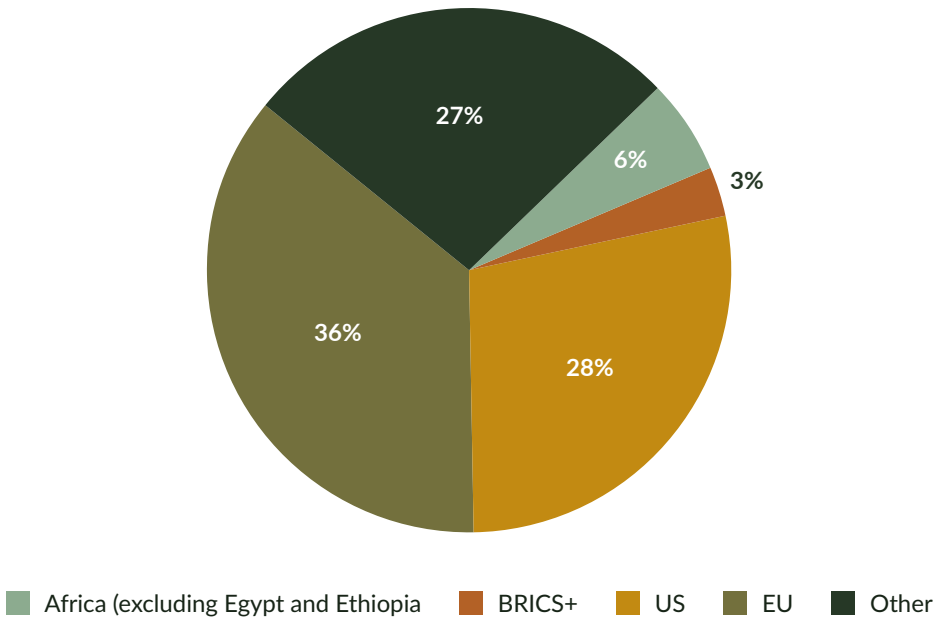
Product-level GHG accounting is becoming increasingly important as climate-related trade measures reshape international markets. Border Carbon Adjustments (BCAs), particularly the EU CBAM, require exporters to monitor, report and verify the emissions embedded in their products. While these measures create new compliance obligations, they also provide firms with an opportunity to identify production inefficiencies, reduce emissions and improve competitiveness.

For South African exporters, the challenge is significant. Existing emissions reporting systems were largely designed to track emissions at company or facility level rather than at product-level. Meeting CBAM requirements therefore requires substantial investment in monitoring, reporting and verification (MRV) systems, as well as greater alignment between domestic reporting frameworks and emerging international standards.

South Africa's aluminium sector is among the industries most exposed to carbon border measures. The European Union and United States account for the majority of South African aluminium exports, with approximately 28% of exports covered by the EU CBAM. Although the sector benefits from relatively low direct emissions compared to some international competitors, its dependence on carbon-intensive electricity creates significant risks as climate-related trade measures evolve.

This brief examines South Africa's aluminium sector preparedness for CBAM and other emerging BCAs. It assesses challenges associated with product-level emissions accounting, evaluates the sector's MRV readiness, and proposes policy interventions to strengthen competitiveness in a carbon-constrained trading environment.

FIGURE 1. SOUTH AFRICAN ALUMINIUM EXPORTS (% SHARE) - 2023

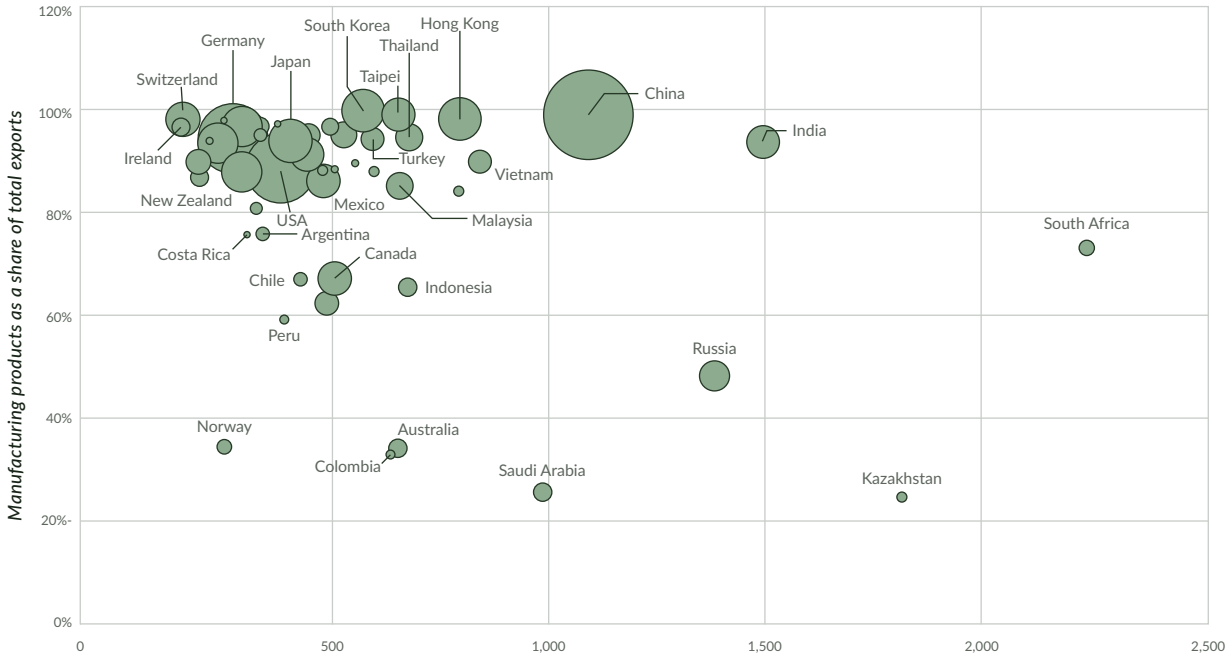


Source: Author's calculations based on Trade Map (2024).

2 Carbon intensity: Why it matters for South Africa under BCAs

South Africa is among the most carbon-intensive manufacturing exporters globally, largely due to its reliance on coal-fired electricity and carbon-intensive industrial production. At 2 243 tCO_2e per US$ million of manufacturing exports, its carbon intensity exceeds that of most major trading partners and competitors (Figure 2). This creates a structural competitiveness challenge under carbon border measures such as the EU CBAM.

FIGURE 2. MANUFACTURING EXPORT PER COUNTRY PER CARBON INTENSITY (IN TCO2E PER US$ MILLION), SHARE OF EXPORTS (IN PERCENTAGE OF THE COUNTRY'S TOTAL EXPORTS) AND EXPORT VALUE (RELATIVE SCALE) – 2013-2015 AVERAGES.



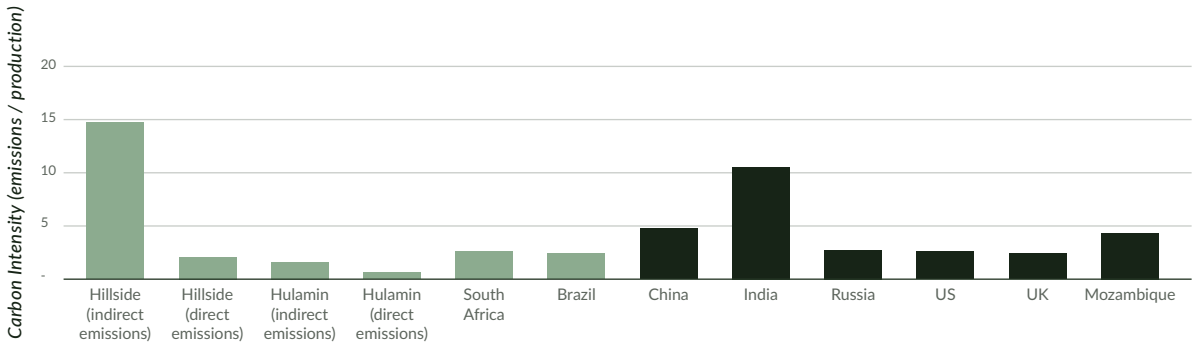
Source: Adapted from (Montmasson-Clair, 2020), based on data from the OECD (Organisation for Economic Co-operation and Development). Dataset on carbon dioxide emissions embodied in international trade, downloaded from https://stats.oecd.org in March 2020.

The implications of carbon intensity become clearer when examining South Africa's aluminium sector and its international competitors (Figure 3).

When only direct emissions are considered, South Africa's aluminium sector performs relatively well compared with major competitors, as reflected in Figure 3, ranking among the least carbon-intensive producers. However, this advantage disappears once indirect emissions from electricity consumption are included. Because aluminium production is highly electricity-intensive and South Africa's grid remains heavily dependent on coal, indirect emissions significantly increase the sector's carbon footprint. South 32's Hillside is particularly exposed, with indirect emissions substantially exceeding those of most international competitors (Figure 3).

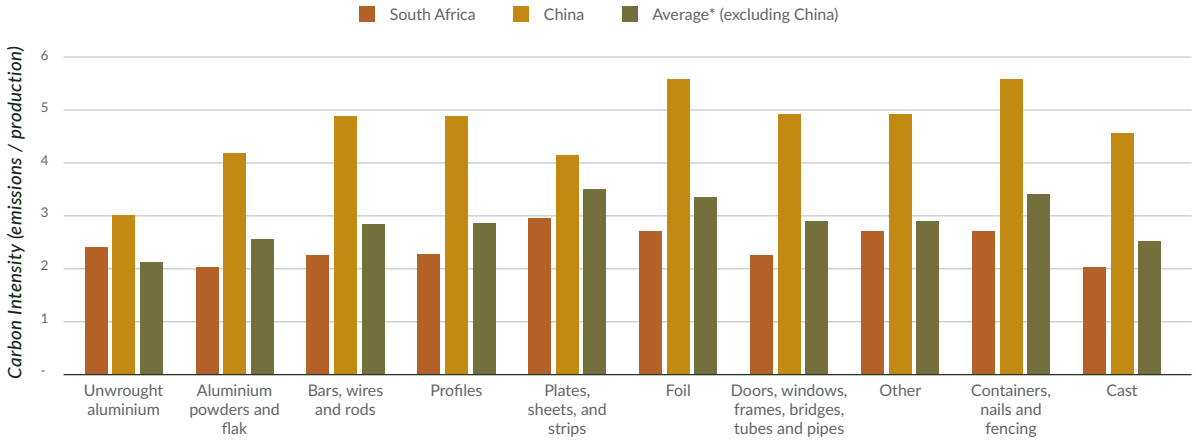
Product-level comparisons show a similar pattern. South African aluminium products generally exhibit lower direct emissions than many competitors, although unwrought aluminium remains more carbon intensive than several comparator countries (Figure 4).

FIGURE 3. CARBON INTENSITY OF ALUMINIUM PRODUCTION: SELECTED COUNTRIES AND SOUTH AFRICAN PRODUCERS (DIRECT EMISSIONS ONLY)



Source: Calculations based on European Commission implementation act on default values (2026); Hulamin annual reports (2021-2025) and South32 annual reports (2021-2025)

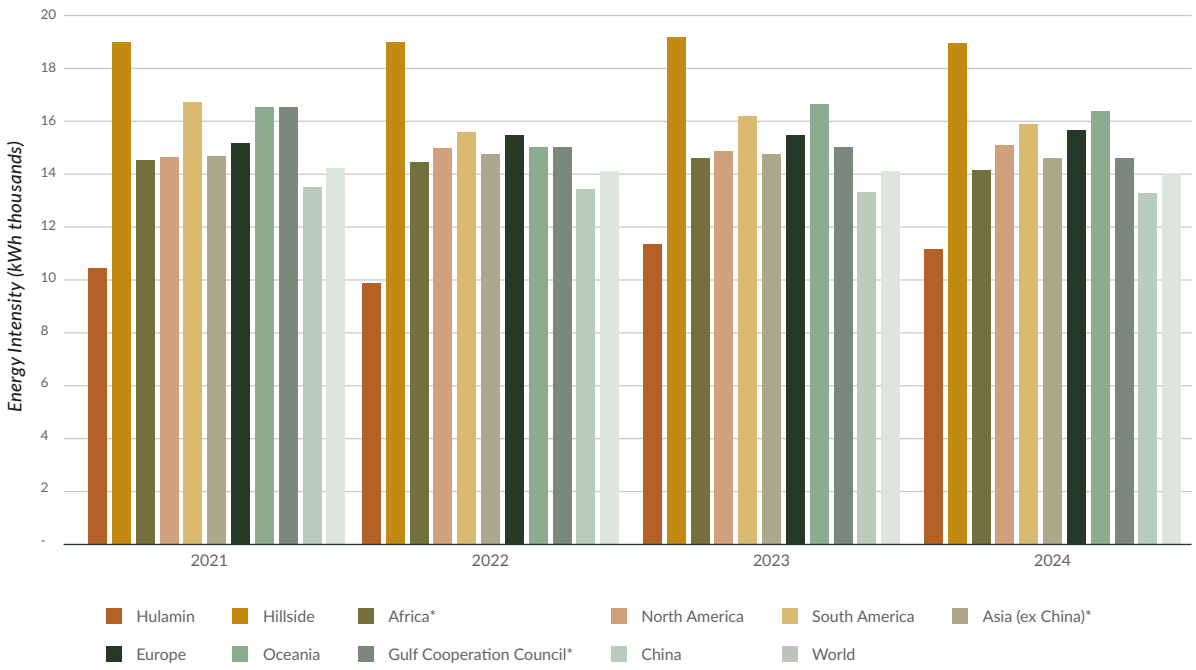
FIGURE 4. CARBON INTENSITY (EXCLUDING INDIRECT EMISSIONS) OF SELECTED ALUMINIUM PRODUCTS, SOUTH AFRICA, CHINA AND COMPETITORS



*Source: based on the (European Commission, 2026) default values on the implementation act. * Average of India, Russia, US, UK, and Mozambique*

The other key aspect of sustainability is the energy intensity of production facilities. Figure 5 presents the energy intensity of aluminium production across regions compared to South Africa's key aluminium players. South 32's Hillside is considerably more energy intensive than both Hulamin and most international benchmarks, consuming approximately 19 000 kWh per tonne of aluminium between 2021 and 2024, compared with 10 700 kWh/t at Hulamin. This high electricity consumption increases both production costs and exposure to future CBAM charges once indirect emissions are included.

FIGURE 5. ENERGY INTENSITY OF ALUMINIUM PRODUCTION BY REGIONS COMPARED TO SOUTH AFRICA KEY ALUMINIUM PLAYERS



Source: (Hulamin annual reports, 2025; International Aluminium, 2026; South32 annual reports, 2026; South32 databook on sustainability, 2025)

From 2026, firms reporting actual emissions under CBAM must also obtain third-party verification. Failure to comply with reporting and verification requirements may result in financial penalties and additional compliance costs for both importers and exporters (European Commission, 2023). The penalty will be €100 for each tonne of CO2 equivalent emitted (European Commission, 2023). Payment of the penalty will not release the importer from the obligation to surrender the outstanding number of CBAM certificates (European Commission, 2023). In addition to the fine, Member States may apply administrative or criminal sanctions for failure to comply with the CBAM legislation per their national rules (European Commission, 2023). It is currently unclear how the Member States would enforce these administrative or criminal sanctions on foreign companies. In the case of circumvention, i.e. slightly modifying the CBAM goods so as not to be listed as goods covered under CBAM, those goods will be flagged to the list of CBAM goods for that exporting country, but legislation on circumvention is still drafted in the EU (European Commission, 2025b).

3 Emission accounting: Challenges in product-level emissions measurement

BCAs introduce significant compliance obligations for exporters. Firms must measure, report and verify the emissions embedded in their products, often requiring new systems, specialised expertise and third-party verification. For many South African industries, developing product-level emissions accounting systems represents a major operational and financial challenge.

Stakeholders consulted through industry engagements have highlighted significant barriers to compliance, including technical difficulties in measuring emissions, limited verification capacity and uncertainty regarding reporting methodologies. These challenges are compounded by differences between CBAM requirements and existing emissions accounting systems.

One challenge relates to uncertainty over what emissions must be measured and how they should be reported, particularly regarding indirect emissions. Evolving CBAM rules have created uncertainty for firms attempting to design long-term compliance strategies.

South Africa already has a national greenhouse gas reporting system, the South African Greenhouse Gas Emissions Reporting System (SAGERS). However, SAGERS was designed primarily for facility-level reporting, whereas CBAM requires emissions to be reported at product-level. This limits its usefulness for firms seeking to comply with emerging trade-related climate measures.

Uncertainty surrounding indirect emissions remains a major concern. While CBAM currently focuses primarily on direct emissions for aluminium, future reviews may expand the treatment of electricity-related emissions. Given South Africa's reliance on coal-based electricity, changes in the treatment of indirect emissions could have significant implications for competitiveness.

The inconsistency of the EU CBAM legislation with global GHG protocols and the local GHG infrastructure (SAGERS) has made the CBAM law unpredictable. South African firms have had to work on a range of assumptions about emissions reporting and reduction measures that may turn out to be incorrect in the case of the EU CBAM. A notable concern raised by the private sector is the lack of clarity on reporting mechanisms with indirect emission tracking and pricing (Maimele, et al, 2025). Although emissions can be easily tracked throughout local production processes it becomes much more complicated, complex, and burdensome when accounting for indirect emissions, especially Scope 3 emissions (transport related emissions).

Other issues pertaining to the monitoring, reporting and verification infrastructure include securing the storage of data and transfer of emissions data to prevent data manipulation. This is now addressed by the recent EU CBAM proposals that allow EU importers (or exporters from South Africa, or their agents) to directly upload (and share) their data on a digital EU CBAM registry (European Commission, 2025a).

More broadly, the absence of globally harmonised standards for product-level emissions accounting continues to complicate compliance efforts. As different jurisdictions develop their own methodologies, exporters face growing administrative complexity and reporting costs.

Collectively, these challenges limit firms' ability to demonstrate compliance, communicate progress to customers and plan emissions reduction strategies with confidence. Delays in developing credible product-level emissions accounting systems could ultimately undermine market access and competitiveness in jurisdictions implementing carbon border measures.

4 South Africa's aluminium MRV readiness

While monitoring and reporting of GHG emissions is relatively advanced in the aluminium industry in South Africa, verification is an issue that requires attention. This is due to limited domestic capacity in verifiers and reliance on international verifiers. This section narrows down the efforts undertaken by the two key players in the South African aluminium industry have to be ready on MRV and clean production

Hulamin

Hulamin has developed one of South Africa's most advanced product-level MRV systems. Originally established to improve energy management and resource efficiency, the system has since been expanded to meet CBAM reporting requirements. The platform monitors emissions across more than 30 products and provides detailed insights into production efficiency and carbon intensity.

The company verifies its emissions using local verification providers, although it notes that verification capacity in South Africa remains limited and requires further development. Hulamin has also emerged as an important source of technical expertise, sharing lessons with other firms seeking to establish similar systems.

The company's experience demonstrates that effective MRV systems can support compliance while also improving operational efficiency, reducing costs and strengthening access to markets where demand for low-carbon products is increasing.

One of the notable achievements on the MRV front is the development of an application that monitors the entire production process. As highlighted in the interview with Hulamin, MRV enables a company to link technological pathways, energy efficiency, circularity, and broader resource efficiency. The interviewee noted that the introduction of CBAM has accelerated the need to consider decarbonisation across Hulamin's operations. The MRV system allows the company to understand the carbon intensity of its production processes, reduce production costs through the identification of inefficiencies, and secure longer-term contracts in the EU, where companies increasingly compete based on the green attributes of their products. In this way, MRV also supports Hulamin in understanding specifications and labelling requirements for what could be green aluminium products based on the monitoring and reporting.

Finally, Hulamin highlighted the need for a national, product-level MRV system that could be spearheaded by the Department of Forestry, Fisheries and the Environment (DFFE) to streamline emission reporting at a product-level. Such a system would create significant opportunities for South African industries to accelerate progress in decarbonisation.

South 32's Hillside

South32's Hillside smelter is the largest aluminium producer in the Southern Hemisphere and one of South Africa's most electricity-intensive industrial facilities. While the company has established MRV systems and reports emissions under both domestic and CBAM-related requirements, its long-term competitiveness is heavily influenced by electricity-related emissions.

When only direct emissions are considered, Hillside remains broadly competitive internationally. However, the inclusion of indirect emissions significantly increases its carbon footprint because of its reliance on Eskom's coal-based electricity supply.

Recognising this risk, South 32 (Hillside's parent company) and Eskom have initiated discussions on integrating larger shares of renewable energy into the electricity supply supporting Hillside's operations. The company is also investing in energy-efficiency technologies to reduce electricity consumption and lower emissions intensity.

The Hillside case illustrates that, for primary aluminium producers, competitiveness under CBAM will depend not only on MRV readiness but also on the pace of electricity decarbonisation.

5 Improving competitiveness: Assessing GHG emissions accounting options

To remain competitive under emerging carbon border measures, South Africa requires practical solutions that improve product-level emissions accounting while reducing compliance costs. Three broad options are available: upgrading national reporting systems, expanding firm-level MRV solutions and relying on EU default emissions values. Each carries different costs, benefits and risks.

5.1. System upgrades

A national upgrade of South Africa's Greenhouse Gas Emissions Reporting System (SAGERS) would provide the most comprehensive long-term response to CBAM requirements. By enabling product-level emissions reporting and greater alignment with international methodologies, an upgraded SAGERS could reduce compliance costs while improving reporting consistency across sectors.

An upgraded system could support standardised emissions accounting methodologies, improve data quality and provide firms with a credible mechanism for demonstrating actual emissions performance. It would also create opportunities for firms investing in renewable energy to differentiate themselves from higher-emitting competitors.

Affected firms along with government and research institutions should create a centralised domestic BCA-compatible MRV system, through the upgrade of the current MRV systems. With BCAs gaining an increased footing in trade policy, many jurisdictions are forming responses to these mechanisms. Countries adapt their infrastructure to align them with the EU reporting methodologies of GHG emissions for GHG-intensive goods.

While this is a long-term intervention and some risks remain uncertain, delaying the SAGERS upgrade risks losing market access to jurisdictions with BCAs. DFFE, along with key stakeholders such as South African Bureau of Standards (SABS) and CSIR, should initiate system upgrades to ensure interoperability with international GHG accounting systems.

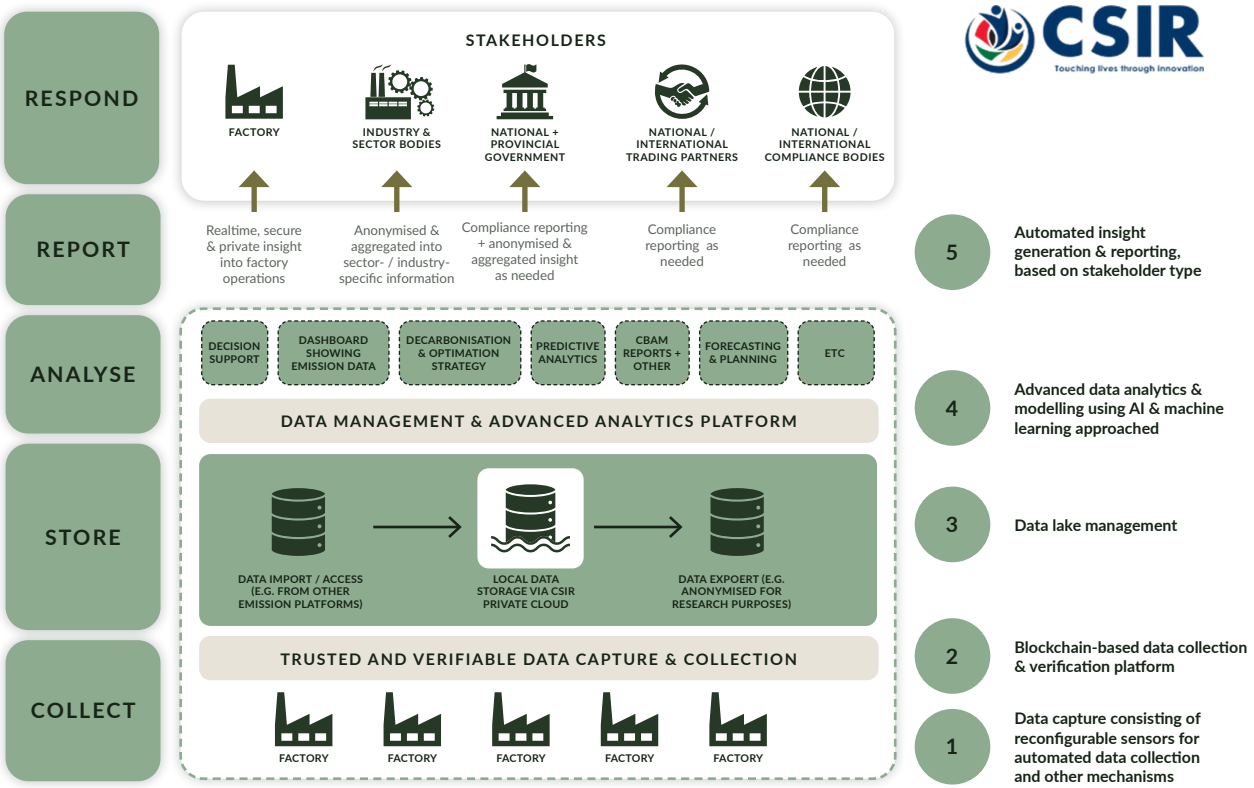
5.2. Firm-level implementation

As BCAs are introduced, it is evident that firm-level MRV systems in South Africa remain in the early stages of development. At present, two notable initiatives are emerging.

First, Hulamin's MRV system demonstrates that product-level emissions accounting can be successfully integrated into industrial operations. Originally developed for energy management, the system now supports CBAM reporting across multiple products and has become a useful reference point for other firms seeking to strengthen their own reporting capabilities.

A second initiative is the CSIR's Greenhouse Gas Observatory, which uses digital technologies to capture real-time energy consumption data and calculate product-level emissions. The platform aims to provide exporters with accurate and verifiable emissions information while supporting compliance with international reporting requirements.

FIGURE 6. CSIR GHG OBSERVATORY



Source: CSIR Centre for Robotics and Future Production, 2024

Beyond firm-level reporting, the Observatory could provide valuable insights into emissions trends across sectors and value chains. This would support industrial policy, climate planning and the design of targeted decarbonisation interventions (see Figure 6).

The platform shows considerable promise, however, scaling it beyond the pilot phase will require additional investment and institutional support. A key limitation is the absence of integrated verification functionality, meaning firms would still need external verification services to comply with CBAM requirements.

Overall, firm-level solutions offer a practical short- to medium-term response to carbon border measures. However, their long-term effectiveness will depend on standardisation, stronger verification capacity and integration with national reporting systems.

5.3. Use of EU default values

Firms that lack the capacity to calculate actual emissions may continue relying on default emissions values published by the European Commission. This provides a relatively simple compliance pathway but limits firms' ability to demonstrate their actual emissions performance.

Under CBAM, default values are based on average emissions intensities and may be applied where verified emissions data are unavailable. These values often exceed the actual emissions performance of more efficient firms.

Affected firms have already relied on the EU's default emissions values, and this intervention supports the continued use of those predetermined values published by the European Commission. The key benefit of this approach is simplified compliance,

as it facilitates reporting through predetermined emissions intensity values. However, South African firms will have no control over these assigned values, which are based on country averages. As South Africa is an outlier with relatively high carbon intensity (Figure 2), this method is likely to result in increased CBAM charges on its exports.

Reliance on default values is particularly problematic for South African exporters because the country's high carbon intensity may result in elevated benchmark values and therefore higher CBAM costs. Continued delays in electricity decarbonisation could further worsen this position.

While this reliance may simplify compliance in the short term, it poses greater challenges in the long term, especially if South Africa fails to decarbonise its energy system promptly. As a result, firms face heightened risks of losing market access due to high-carbon intensity, making the use of default values a short-sighted strategy with both immediate and future consequences.

Overall, the risk associated with this intervention remains high, but firms are prone to using it when they do not have MRV systems in place, mainly small businesses. Affected firms have no control over the EU's default emissions values, and the slow pace of energy decarbonisation in South Africa exacerbates these challenges.

Taken together, the three options differ significantly in their strategic value. Reliance on default values offers the lowest-cost short-term solution but carries the highest competitiveness risks. Firm-level MRV systems provide an effective immediate response but remain constrained by verification and scale. Upgrading SAGERS offers the most comprehensive long-term solution by creating a nationally coordinated framework capable of supporting both firms and policymakers in an increasingly carbon-constrained trading environment.

6 Protecting the aluminium industry: Monitoring, reporting and verifying emissions

The aluminium industry in South Africa is at a relatively advanced stage of Monitoring and Reporting readiness, however, efforts to date have largely concentrated on monitoring and reporting, with verification requiring significantly more attention. Securing access to cleaner and renewable energy could position the sector to remain globally competitive, particularly amid rising demand for low-carbon products. Energy efficiency improvements can also play a central role in driving decarbonisation within the sector.

Although the industry faces challenges related to carbon intensity, especially when indirect emissions are included, energy intensity, and weaknesses in verification systems, it is comparatively well placed to protect its operations and products against emerging global climate and trade measures, such as BCAs.

From an MRV infrastructure perspective, the aluminium industry must prioritise and continue strengthening firm-level GHG accounting systems, with due consideration given to verification and certification capacity and institutional readiness. Upgrading the SAGERS is non-negotiable for ensuring policy certainty and could serve as a potential verification platform for all South African firms. Based on these findings, the following policy recommendations are proposed.

6.1. Strengthen Domestic Verification Capacity for CBAM Readiness

Although South Africa's aluminium industry has developed relatively advanced systems for monitoring and reporting greenhouse gas emissions, verification remains a critical weakness. The limited pool of accredited local verifiers forces firms to depend on costly international services, which raises compliance costs and undermines competitiveness under the EU's CBAM. To address this gap, South Africa requires support to invest in building domestic verification capacity. This requires establishing national accreditation pathways aligned with CBAM standards, training and certifying local professionals to conduct product-level emissions verification, and creating a sustainable pool of accredited verifiers to serve aluminium and other CBAM-exposed industries. Regional cooperation could further enhance this effort, enabling South African verifiers to support neighbouring countries and strengthen Africa's collective CBAM readiness. By developing local verification expertise, South Africa can reduce reliance on expensive international services, lower compliance costs, and ensure its aluminium sector remains competitive in the EU market.

6.2. Upgrade SAGERS for CBAM Compliance through International MRV Cooperation

South Africa should upgrade SAGERs to enable product-level emissions reporting aligned with CBAM methodologies. This upgrade must be complemented by international cooperation on MRV interoperability, ensuring that South African data is recognised under EU standards. Such cooperation would involve technical exchanges, harmonisation of reporting protocols, and capacity building for verifiers. By modernising SAGERS and embedding it within an interoperable MRV framework, South Africa's aluminium sector can maintain EU market access, avoid punitive default values, and strengthen its competitiveness in a carbon-constrained global trade environment..

7 Conclusion

South Africa's aluminium sector is relatively advanced in its preparedness for carbon border measures, particularly in relation to monitoring and reporting emissions. However, significant gaps remain, particularly in verification capacity and product-level emissions accounting.

The sector's competitiveness will increasingly depend on two factors: the ability to demonstrate verified emissions performance and the ability to reduce electricity-related emissions. While firms such as Hulamin and South 32's Hillside have made important progress, broader institutional support will be required to scale these efforts across the value chain.

Upgrading SAGERS, expanding domestic verification capacity and accelerating renewable energy deployment should therefore be treated as strategic priorities. Together, these interventions would strengthen compliance with emerging climate-related trade measures while supporting the long-term competitiveness of South African aluminium exports.

8 References

CSIR Centre for Robotics and Future Production. (2024). Greenhouse Gas Observatory Proof of Concept.

Eskom. (2026, April 28). Joint Media Statement – South32 and Eskom advance electricity talks for Hillside Aluminium Smelter—Eskom. Available at: https://www.eskom.co.za/joint-media-statement-south32-and-eskom-advance-electricity-talks-for-hillside-aluminium-smelter/

European Commission. (2023). REGULATION (EU) 2023/956 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023—Establishing a carbon border adjustment mechanism. Official Journal of the European Union, 66(1), 52–134.

European Commission. (2025a). Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism. European Commission. Available at: https://commission.europa.eu/publications/omnibus-i_en

European Commission. (2025b, October 20). Regulation (EU) 2025/2083 of the European Parliament and of the Council of 8 October 2025 amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism. EUR-Lex. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202502083

European Commission. (2026). Annex to the implementation act on default values [Dataset]. Available at: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/cbam-legislation-and-guidance_en#default-values-and-benchmarks-definitive-period

Hulamin annual reports. (2025). Hulamin sustainability reports—2021-2025. Hulamin. Available at: https://www.hulamin.com/about/sustainability

International Aluminium. (2026). Primary Aluminium Smelting Energy Intensity [Dataset]. Available at: https://international-aluminium.org/

Maimele, S. (2023, July). Responding to the European Union's Carbon Border Adjustment Mechanism (CBAM) South Africa's vulnerability and responses. Trade & Industrial Policy Strategies (TIPS). Available at: https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/4590-responding-to-the-european-union-s-carbon-border-adjustment-mechanism-cbam-south-africa-s-vulnerability-and-responses

Maimele, S. (2024). South Africa's Iron, Steel and Aluminium Industries Readiness to Respond to CBAM. Trade & Industrial Policy Strategies (TIPS). Available at: https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/4791-tips-south-africa-iron-steel-and-aluminium-industries-readiness-to-respond-to-cbam

Maimele, S., Ismail, F., Patel, M., Hector, M. (2025). Border Carbon Adjustments Research: Strategic Pathways to Mitigate Adverse Impacts. Presidential Climate Commission, South Africa. Available at: https://cms.climatecommission.org.za/uploads/images/BORDER-CARBON-ADJUSTMENTS-RESEARCH_STRATEGIC-PATHWAYS-TO-MITIGATE-ADVERSE-IMPACTS.pdf

Maimele, S. (2026, January 26). EU's CBAM just became much tougher. Business Day. Available at: https://www.businessday.co.za/opinion/2026-01-26-seutame-maimele-eus-cbam-just-became-much-tougher/

Monaisa, L., & Montmasson-Clair, G. (2022). South Africa's aluminium value chain and climate change compatibility. Trade & Industrial Policy Strategies (TIPS). Available at: https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/4532-south-africa-s-aluminium-value-chain-and-climate-change-compatibility

Montmasson-Clair, G. (2020, August). The Global Climate Change Regime and its Impacts on South Africa's Trade and Competitiveness: A Data Note on South Africa's Exports. Trade & Industrial Policy Strategies (TIPS). Available at: https://www.tips.org.za/images/TIPS_data_note_The_global_climate_change_regime_and_its_impacts_on_SAs_trade_and_competititiveness_August_2020.pdf

NERSA. (2021). NERSA Submission: Ten-year NPA for Hillside Aluminium Smelter (Pty) Ltd – Feb 2021 revision. NERSA. Available at: https://www.nersa.org.za/files/files/2021/06/Application-for-a-ten-year-negotiated-pricing-agreements-for-Hillside-aluminium-smelter-Pty-Ltd-in-Richards-Bay-uMhlathuze-local-Municipality-Kwazulu-Natal.pdf

South32 annual reports. (2026). Annual reports of South32—2021-2025. Available at: https://www.south32.net/sustainability/sustainability-reporting

South32 databook on sustainability. (2025). Databook on sustainability [Dataset]. Available at: https://www.south32.net/docs/default-source/annual-reporting-suite/2025/sustainability-databook-2025.xlsx?sfvrsn=e2fec585_1

Trade Map. (2024). Bilateral trade between BRICS+ and European Union (EU 27) and the World—Data. Trade Map. Available at: https://www.trademap.org/

African Future Policies Hub

www.africanfuturepolicieshub.org